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TEACHERS COLLEGE RECORD

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CAESAR, CICERO AND POMPEY*

By GONZALEZ LODGE

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One of the objections raised by our enemies to the Teaching of the Classics is the lack of coördination of ancient life and thought with our own, and when we claim this or that advantage as accruing from Classical Study they counter with a flat denial of the realization of any such advantage and maintain that whatever our protestations, as a matter of fact most of our attention is devoted to linquistic drill to the disregard of much more important matters.

Without entering into controversy we may fairly admit that our students do not get as much out of their study as they might under more favorable conditions. And our enemies are to this extent right, when they affirm that classical study can not properly be divorced from the contents of the authors studied. When a child reads Cæsar, he is reading history, no matter how much that fact is obscured in the teaching, and when a child reads Cicero, he is reading documents that had an important bearing upon the politics of the period, even if his attention seems to be focussed primarily upon linguistic analysis. Furthermore, though it may not be dwelt upon, he is coming into immediate contact with personages who were influential in molding the events of their times, and however much we may talk about modern progress, the fact remains that human nature has changed but little, if at all, and that every generation has to solve problems that have engaged the attention of generations

*An address before the Classical Section of the New York State Teachers Association, Albany, Nov. 25, 1919.

ages and ages ago. These solutions are made now, as then, by great individuals who have been put forward by their respective times and whose work, whether bad or good, has affected the course of human destiny for period after period.

It would seem therefore that a certain obligation should in any case rest upon and be acknowledged by classical teachers to see to it that their charges get rational and correct conceptions of the man and the times about which they are reading, but this obligation attains greater intensity when we reflect that the first century B. C. was one of the crucial centuries in the history of mankind, with importance particularly to us, not merely at all times, but especially during these days, when the paramount question is "Shall democratic government continue to exist? or shall the cycle of change build a new system on the ruins of the old?"

For it seems that nations and governments, like individuals, pass through a regular progress of growth, decay and death, and that from their dead ashes are born new systems and nationalities which run their course in turn. In the first century B. C. occurred the final collapse of the Roman Commonwealth with all its enormous contributions to the theory of representative government, and the birth of a new system, which, in its turn, was to wax great, pass through a period of full vigor, grow old and finally be killed by the onrush of a tide which has never ceased to destroy since the beginning of recorded history.

It should be a matter for self-congratulation that in our school curriculum are included the works of two of the chief actors in this great tragedy, namely Cæsar and Cicero, and that in the writings of the latter are furnished not only the opportunity, but the material for the study of the activities of the third great actor, Pompey.

It is my purpose in the brief time at my command to make a few more or less disjointed suggestions as to possibilities of interpretation that may arise in the course of our teaching, and inasmuch as of the three Pompey is known mostly from Cicero, I shall spend a good deal of my time upon him.

But before coming to Pompey, I should like to say a word or two about Cæsar. It is not uncommon to hear critics and even teachers, otherwise favorable to classical teaching, attack

vigorously the retention of Cæsar in the curriculum. This attitude seems to me to indicate that they have not thought seriously upon the position he and his work occupy in the history of civilization. Western Europe has been settled, as is well known, very largely from the east. From the earliest times the movements of peoples have been toward the west, one migration following hard upon the previous one, until the foremost one reached the western sea. Then, of necessity, the edge of the movement was doubled back and deflected southward. This led to the invasions of Italy and later of Spain. Early Roman legend and history gives more than one account of Gallic invasions, and later Roman history shows that the menace was never wholly absent from the minds of the Romans, despite the sanguinary defeats with which the invaders met. These movements were not merely marauding forays, but their basis was entirely economic. Pressure from behind was never relaxed and the only resource was to press ahead themselves. The Helvetian movement was simply one of these forced migrations. The direction of it was conditioned by the geographical situation, and the whole justification of the migration is correctly given in the reasons ascribed to the Helvetians by Cæsar. Cæsar was therefore not at the outset engaged in a war of conquest, as is not unfrequently said, but was in reality waging a war in defence of civilization against the attacks of the Helvetians, acting under economic pressure. This in itself constitutes a sufficient defence of the reading of Cæsar, for the opportunity is here afforded to give a lesson in the progress of society, using as an example one of the crucial situations of history. Suppose, for a moment, that this movement had not been opposed by the genius of a Cæsar, and had succeeded in making its way into northern Italy. It is not beyond possibility that the Dark Ages might have engulfed the world five centuries before they did, before Gaul had been civilized or Britain exposed to the influence of culture. Properly handled, the Helvetian Campaign can be made to justify, by itself, two years study of Latin. Still one further matter! Inasmuch as there is time for the reading of only a small amount of Cæsar very few pupils ever get a chance to read of the invasion of Britain. But this is again a most important operation from an economic point of view. Many reasons are suggested to

account for this expedition. Cæsar gives the one sufficient one, that Britain supported, though not necessarily by active coöperation, the tribes of Gaul in their conflicts with him. It is interesting that even at this early date Britain served as an asylum for political refugees, and gave them the base from which to carry on their work of revolution, which they have used to this very day. If Cæsar was to leave his work finished, he had to make Britain an unsafe place for opponents of Rome. The fact that he succeeded ensured the permanence of his work in Gaul and the humanizing of the West, and through the west of our own land.

But to return to Pompey. The character of this man has been variously interpreted, but he has remained more or less of an enigma to many, in spite of the brilliant panegyric in the speech on the Manilian Law. And yet he seems to me to be the least complex of the three great men, for his greatness is only that of a 'single-track' mind, and that track a 'narrow gauge'. Let us study him for a few minutes.

The father of Pompey was a successful soldier of the senatorial party, and under his command Pompey himself got his first military experience when he was a youth of 17. After his father's death Pompey was still too young to take full part in the civil war, and remained at home for several years while Sulla was absent from Italy, and the Marians were in control. Meanwhile Sulla had cleared up the East, and when the news came to Rome that having finished his work in the east, the victorious commander was on his way home to take vengeance on the Democrats, Pompey, though still only 22 years of age, slipped away to Picenum, and raised the standard of Sulla. Soldiers flocked to him and he was soon at the head of three legions. He managed to outfight and outmanœuvre the Marian forces all about him and on Sulla's landing joined him with this substantial reinforcement. This achievement showed military skill of a high order, and a personality which must have always been very attractive to the common soldier. It is scant wonder that Sulla was much impressed with the young man and admitted him at once among his trusted lieutenants.

During the battles that followed, Pompey distinguished himself as a commander to such a degree that after Sulla became

dictator he sent Pompey to Sicily and Africa to finish up matters there, and on his return to Rome granted to his youthful general the highest honor possible to a military leader, a triumph, though Pompey was still only 26 years old. This was in 81.

Sulla was the undisputed autocrat of Rome, and Pompey was his favorite. He had received from the dictator the surname 'the Great', and was beyond question the second figure in the public eye. During the next few years he lived in the atmosphere of a court and rested. Then suddenly comes one of the most dramatic renunciations in history. Sulla laid down his power and retired to private life. Not however before he had completely revised the Roman constitution so that under the appearance of a government of law the aristocracy should be absolute in every branch of government, legislative, administrative and judicial. The slow gains of four hundred years of democratic progress were apparently completely destroyed, and Rome became the private property of the aristocracy, with Pompey as their chief buttress.

Let us attempt to visualize Pompey. He is 28 years of age. He is the chief figure in the state. He holds no office, has not even the privilege of a seat in the senate. He has no political experience, for all his training and life has been military. He has but a slight education, for he was a soldier at seventeen, and we have no indication that he was a student of letters. He has reached the summit of his career at 28,—and has nothing to do. He could not demean himself to enter politics and become a candidate for the lowest office in the cursus honorum. He could only sit about and hope for another war. Was he conceited? Insufferably so. Was that not to be expected? Was he popular? In a way, with those who did not know him. But his prestige was enormous, especially among the populace. Military prestige is always most powerful with the unthinking. The senate was afraid of him. He was only a soldier, and soldiers were in bad repute with the privileged class. In him might lurk another Sulla, if he were given the chance. So the senate distrusted him and snubbed him as he sat apart in splendid isolation, ennuied to death, and an easy mark for any scheming politician who could gain access to him. A few minor civil disturbances requiring military suppression served to divert him somewhat during these

days, but the idea began to gnaw more and more at his heart that he was not properly appreciated. Finally the situation in Spain became so serious that the senate had to take account of it. Doubtless the senate would gladly have chosen another man. But the situation demanded military capacity of a high order and there was no other military leader of wide experience at hand. So with much hesitation the senate decided to send him to Spain with an army. Pompey had at last after four years of practical idleness something to do. He was happy again. This was in 77.

Pompey was in Spain for some six years. It is not necessary to follow his movements in detail. It is sufficient that he finally brought the war to a triumphant close, and returned to Italy, clearing up the remains of the Slave War on the way, in 71. During those six years important events were transpiring at Rome. The most important of these was the entry into public life of Cicero and Cæsar. Cicero who had already gained some reputation at the bar, began his official career in 75 with the quaestorship. On his return from Sicily he was admitted to the senate in 74, and from this time was a political power. Cæsar who had been serving in the East for some years, had also returned to Rome as pontifex in 74, and from this point of vantage was devoting all his vigor to politics. He had as yet held no office in the cursus honorum, but was using all his skill to gain the personal following that was to stand him in such good stead later.

While matters stood thus Pompey appeared before the gates of Rome at the head of his army. But it was a somewhat different Pompey, an older and more experienced Pompey. He did not intend to be shelved again; he had no desire to take control of the government, which he could have readily done; he was still as indisposed as before to imitate the course of Sulla. But he did not mean to be left to rust out. So he demanded the consulship. This only postponed the evil day by one year, but by that time there might be another war. The senate demurred. Relieved of the fear of a military autocrat it became suddenly a strict constructionist. Pompey had as yet held no public office. It would not do to let so illegal a procedure take place. So the senate objected. This was Cæsar's opportunity. His own future was also in the balance. Another Sulla meant no chance for

Cæsar. But the estrangement of Pompey and the senate gave promise of the overthrow of the Sullan constitution and the clearing of the way to legitimate participation of the democratic party in politics. So it is unquestionable that all of Cæsar's power with the people was thrown on the side of Pompey, and the pressure at last proved irresistible, and the senate yielded. The fruits of this bargain were soon evident in the complete overthrow of the Sullan constitution, and the participation of all orders of the state in government was again a fact. At the end of Pompey's consulship, the hoped-for war had not materialized, and he was again forced into innocuous desuetude, but he had a better position in that he was now a member of the senate, and furthermore was in alliance with the leader of the democratic party. Cæsar becomes quaestor in 67, the first step in the cursus honorum.

But what of Cicero? In 70, the year of Pompey's consulship, he delivered the speech against Verres. His reputation, good before, with this speech became great. In 69 he was aedile. He was to be praetor in 66 and consul in 63. It is to be borne in mind that he belonged to the equestrian order. This order had been almost as badly suppressed by the Sullan constitution as the proletariat. Hence he must have been in favor of the measures of the Pompey-Cæsar coalition. But any consideration of Cicero's activities and life must start from and ever return to the fundamental fact that Cicero was an 'idealist'. His ideal was the old Roman state, composed of three orders, with freedom of opportunity for every man. Cicero had a philosophic mind, balanced by sentiment, and interpreted by common-sense. He had a clear vision, a power of acute analysis, an uncanny appreciation of the motives of others, and a most unfortunate possession, the judicial mind. He always saw both sides of a question, and this very power often caused him to delay long before taking any decisive step. Cicero was no time-server, but he served his ideal of government. Vain, supersensitive and subject to moods, he still held fast to his aims in life. These may have involved his own advancement, but the question of their effects upon his own fortunes was always subordinate and his course of conduct was ultimately decided by the standard of his life's set purpose. And that purpose was of the highest. We must always discount the

fervor of his remarks in his letters. That he loved Pompey is impossible, that he hated Cæsar is likewise impossible. That he respected Pompey's achievements in the field, and regarded him as an important support of the new order, was the only thing that he could do. But in every thing that Cicero did, if we look deep enough, we find that he acted as he thought best for the country, even at personal risk. Hence his juncture with Cæsar in his advocacy of the Gabinian Law. Hence his later advocacy of the Manilian Law. Hence his support of the measure of Cæsar to ratify Pompey's acts in the East. Hence his position in the matter of the Catilinarian conspiracy. Hence his opposition to the first triumvirate and his refusal to join in that cabal. Hence his long hesitation as to his course in the civil war. Hence his consistent refusal to yield to Cæsar's blandishments. Hence his apparent acceptance of Cæsar's *fait accomplis* and his appearance in the senate after Pharsalus. Hence his joy over Cæsar's assassination. Hence his savage attacks upon Antonius. Hence finally his submission to his fate in the country "so often saved by him."

In reading Cicero the emphasis is often misplaced. We are told that this is the place to study the Roman constitution, and this is true; but not the constitution in detail, only in its important features, and these are few. The fundamental fact about the Roman constitution is that it was the first genuine attempt to realize in action the theory that while a state consists of various elements, a just government must give every one his chance, and no individual or class must be favored at the expense of the rest of the state. The executive must be checked from autocracy, hence there must be two consuls. The legislative must be checked from undue domination, hence the Tribunes of the people. The proletariat must be checked from undue prominence, hence the large number of Tribunes, each having the veto power upon legislation. It will not do to say that this constitution was faulty, or that these checks failed to work. The system as it was developed, was the result of four hundred years of political growth based upon compromise suggested by patriotism, the like of which has only been seen in the growth of the English constitution. It suited the Romans for three hundred years, that is, as long as the Romans remained as they were after the

expulsion of the kings, that is as long as the ideals of nationality, of patriotism and of honesty lasted. When honesty succumbed to wealth, won by the exploitation of the helpless; when patriotism yielded to the selfishness of individual purpose, and one's own advancement took precedence over the interest of the commonwealth; when nationality disappeared under the influx of myriads of foreigners, most of whom had not the tradition of freedom, and no experience of democratic government; when every one became class-conscious under the skillful poisoning of unscrupulous demagogues, then the Roman constitution ceased to function. This was the state of the people of Rome, and this the condition of the Roman governmental system, when Cicero took the helm. This was the condition which Cicero tried to remedy by restoring the system as it existed before the civil wars. That the patient was beyond the help of the physician is not to be laid to the physician's door. He did what he could that democracy might not perish from the earth. Are the conditions in our own country so different from those of Rome in the first century before Christ, that we can draw no lessons for our own guidance? Only the wilfully blind will say they are. The study of Cicero can be justified merely by the possibility it offers to citizens of a democracy to study in an actual instance, as if in a laboratory, the greatest experiment in democratic government before the English-American.

But what of Pompey? He too remained true to type. His one aim in life was the maintenance of his own position. He was in effect the Marshal of Rome. He was the god in the background, always ready to be worshipped. Worship was the breath of his nostrils. Men grow weary of continual worship, and they grew weary of Pompey. The senate did not always want to be explaining to Pompey that he was their tower of strength. To the outside world Pompey was Magnus, to himself, he became more and more Maximus. His actions are all reducible to this, his fundamental egotism. Hence his coalition with Cæsar when the senate was recalcitrant. Hence his membership in the First Triumvirate. Hence his return to the senate when Cæsar began to raise his head as a rival military chieftain. Hence his refusal to leave Rome to go to his province. Hence his reluctance to believe that Cæsar could ever have any

serious hold upon the hearts of his soldiers. Hence his blindness to what every one else could see. Hence his disgraceful death. He labored for himself alone. He received his deserts. The study of his life and personality ought to afford a powerful lesson in what should be the fate of any one who, in a democracy, sets up his own self and his own ambitions as the standard by which to direct his political activities.

There is but one salvation for democracy, the 'harmony of the orders' for which Cicero worked and died. When one order, no matter which one, tries to gain its ends, no matter how justifiable, by recourse to any means but the sweet reasonableness of appeal to the spirit of consideration and fair dealing, which always lurks in the depths of the heart of humanity, that order strikes at the very foundations of democratic government. That lesson, so necessary for all to know to-day, is the outstanding lesson of the Latin work in the high school.

NOTE—The numerous views and suggestions concerning Cæsar's intentions and aims in his campaign against the Helvetians, including the fantastic vagaries of Ferrero, have been fully and adequately treated by Holmes in his *Cæsar's Conquest of Gaul* (2nd edition, Clarendon Press. 1911), a book which should be in every high-school library, although its availability is seriously restricted by its excessive cost. Of great importance for the study of this period are the biographies of Cæsar and Cicero, of which may be mentioned Sihler's *Annals of Cæsar* (New York. Stechert. 1911) and *Cicero of Arpinum* (New Haven. Yale University Press. 1914), as well as Warde Fowler's *Julius Cæsar* (New York. Putnam's. 1891) and Strachan-Davidson's *Cicero* (New York. Putnam's. 1894). A sympathetic and very interesting analysis of the character of Pompey is given by Masefield in his play, *The Tragedy of Pompey the Great* (New York. Macmillan Co. 1914) which teachers of Cicero would find well worth while to read.

VOCATIONAL HOMEMAKING EDUCATION: SOME PROBLEMS AND PROPOSALS*

By DAVID SNEDDEN
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The education of women and girls for the homemaking vocations has evolved to a point where many specific problems can be diagnosed. It is the purpose of this article to state a few of these problems, to suggest some methods for their further study, and to submit certain tentative proposals for criticism. As far as practicable, the methods employed will be those being developed in educational sociology, namely, to base all proposed aims of education upon an analysis and evalaution of these needs of social groups to be realized in and through education, school and non-school. The standards will be those increasingly accepted in the general theory of vocational education. The article is designed primarily for educators engaged in research in the fields of homemaking and household arts education, or in administering state and national legislation intended to promote such education.

I. Problems for Consideration

1. Do we possess as yet any definitions of the homemaking vocations sufficiently specific and concrete to serve as foundations for the formulation of satisfactory programs of instruction and training for those vocations? Where can they be found? (It is obvious that definitions expressed only in vague general terms render very poor service.)

2. Back of definitions of homemaking, do we as yet possess analyses and classifications of *homes* sufficiently concrete to enable us to determine what are, for given social groups and conditions, optimum degrees of efficiency to be expected of homemakers? (For example, the criticism is often heard that

* In the preparation of this paper, the writer has availed himself constantly of the suggestions and criticism of students, colleagues, and others too numerous to mention by name. Thanks are due them all for their patience no less than for their courtesy.

This article is available in bulletin form (Bureau of Publications, Teachers College).

existing programs of home economics education are based on excessively high home maintenance standards from the standpoint of those whom they are to serve—that they ignore the $900–$1,200 income class home, in spite of its prevalence.) Where can such analyses be found?

3. Have we as yet any sufficient survey of the effectiveness of the non-school vocational education for homemaking which now prevails (and always has prevailed, possibly in different forms) in various social groups or income levels? Where can the results of such surveys be found? (It is alleged that programs of basic home economics education now take no adequate account of the effectiveness of non-school education, and therefore fail to utilize its results, coöperatively or as basis of correlation.) What, for specified groups or conditions, are the contributions of such education to (*a*) ideals and appreciations, (*b*) technical knowledge, and (*c*) skills, at age levels 1–12, 12–15, 15–18 for non-wage-earners or school attendants, (*d*) 15–18 for wage-earners or school attendants, (*e*) 18–22 for home "boarders," (*f*) 18–22 for home assistants, (*g*) 22–30 for young married women, etc.?

4. Is it practicable to distinguish in the actual exercise of the homemaking vocation by given individuals the factors, respectively, of "skills," forms of "related technical knowledge," and forms of "related hygienic, social, and cultural knowledge (and ideals)" in such a way as to deduce therefrom the best parts which should be played respectively by home apprenticeship, school education, and undirected experience, in the total educative processes of producing vocational competency? (Home economics classes and courses have heretofore restricted themselves largely to *technical instruction;* they seem to have done little to produce the two classes of skills essential in homemaking —manipulative and managerial; and both their methods and results have been freely criticised as "impractical," "over-technical," "excessively wedded to book and laboratory.") Under what conditions can technical instruction alone function in vocational competency—(*a*) as instruction unconnected with home experience for girls 12–16 under conditions of home apprenticeship, (*b*) as instruction uncorrelated with home experience on part of girls 16–20, (*c*) as extension instruction to housewives? Does Bulletin 28 of the Federal Board for Vocational Education

definitely provide for "training"? How can training in "homemaking arts" be given? Have we as yet any satisfactory analyses of "training" for homemaking at ages 12–14, 14–16, 16–20, before marriage, after marriage?

5. In general it is agreed that the best time for vocational education is just prior to the individual's undertaking "full responsibility" work as operative or manager in the vocation itself. When do the following persons usually undertake "full" or "part" responsibility work: farmers' daughters not leaving home until married; domestic servants; women, wage-earners from 16–23, then marrying and discontinuing outside work; home-staying daughters? How far are girls exceptions to above principle by virtue of constant living in homes? How far do girls at 14–16 possess active motives for entry upon vocational homemaking? How far can results of homemaking instruction or training keep in "cold storage" (without application), *e. g.*, in cases of girls 16–22 working for wages, but living at home? How far can "instincts" for homemaking contribute to expected proficiencies —along food lines, clothing, sick-nursing, child care, management? Which of these problems have been well investigated?

6. To what extent have aims, methods, and administrative organization of home economics education taken shape under limitations imposed by conditions of other forms of education? Why do we think of it chiefly as related to ages 14–18 in high schools? As parallel to liberal arts courses? As dependent upon "laboratories"? As yielding almost no forms of coöperation with homes? How can we provide for investigation of problems of specific aim and method on assumption of "optimum" conditions?

7. What is the "case" method of study? Is it practicable to procure, within reasonable limits of precision, type "cases" of home practice, preparation for home practice, needs of preparatory training, present schemes of school preparation, and the like, and tentatively to analyze and evaluate these?

8. What are principles of vocational education in general which are capable of application in homemaking?

9. What is the "home project method" of vocational homemaking?

10. Are the suggestions of Bulletin 28 conclusive?

11. What is the place of household arts in liberal education?

II. What Are Homes?

The "home" is a very much generalized conception. Every person can in a measure appreciate, even visualize, a home or homes. But we still possess no adequate analysis of the essential characteristics and functionings of homes of various kinds. Because of the indeterminateness of prevailing "job analyses" of homemaking and the hardly less vague standards of functioning of the home as a social agency, most current proposals and practices toward education for homemaking exhibit endless evidences of artificialty and impracticality.

1. In the most universal sense, the home is obviously a place for the rest and recreation of adults. It is manifestly also a workshop for the elaboration of consumable goods—foods, clothing, beds, social intercourse, worship, education. In its profounder aspects it is a means for the nurture of children. These functions are interdependent, interlocked; but, for any given type of home, which are more fundamental, more socially essential, than others? We greatly need concrete analyses of these problems along the lines of the classifications suggested below.

2. It is, indeed, highly desirable that we should have functional analyses of various types of "homes." In the modern world there are many specialized agencies which function, temporarily or permanently, as homes for adults engaged in vocational pursuits—barracks, cantonments, ships, hotels, bachelors' cabins, dormitories, hotels, Pullman cars. There are hive-like homes for children more or less abnormally situated—asylums, boarding-school dormitories, institutional cottages. Homes for monogamous families also exist in several species, from the hotel apartment and housekeeping apartment, the urban "row" or semi-detached house, to the detached urban dwelling, and the farm homestead.

3. If we assume that, sociologically considered, the primary function of the "home" is to contribute to the rearing of children, then the various species of "family" homes should be divided into a number of varieties according to scope of their work, and the means wherewith it is to be done. The following at least are some of the types that require extended analysis (the words "normal number of children" denote expectancy of from

four to six children by time mother is at age of forty): (*a*) tenement home, no servant help; normal number of children; annual income less than $800 (1900–1914 prices); (*b*) same, but income $800–$1200; (*c*) same, except apartment with hot-water and heat, and income $1200–$2000; (*d*) same, income $2000–$3000; (*e*) apartment home, one servant, subnormal number of children, income $2500–$4000; (*f*) same, subnormal number of children (one), no servant, income under $1200; (*g*) apartment, subnormal number of children (two), one servant, income $2000–$4000; (*h*) detached urban or suburban house, no servant, normal number of children, income under $1000; (*i*) same, but subnormal number of children, income under $1000; (*j*) same as (*h*), but income $1000–$1500; (*k*) same, income $1500–$2500; (*l*) same, except one servant, and income $2000–$4000; (*m*) detached urban or suburban house, subnormal number of children (one or two), no servant, income $1200–$2000; (*n*) detached house, normal or subnormal number of children, three or more servants, income $7000–$20,000; (*o*) detached farm home, excess number of children, net income (money and kind) under $700, colored; (*p*) same, white; (*q*) same, white, but net income $750–$1100; (*r*) farm home, normal number of children, no servant, net income $800–$1000; (*s*) same, net income, $1000–$1500, irregular help; (*t*) farm home, normal number of children, two or more servants, income $3000–$10,000.

4. It is also desirable that homes should be classified in terms of the ideals or standards toward which they aspire, as well as the conditions they must meet. What are the "standards of living," or perhaps better, the standards of comfort, toward which are striving: (*a*) The American-born manual workingman's family? (*b*) The American-born land-owning general farmer? (*c*) The American-born well-educated professional man or commercial worker? (*d*) The colored tenant farmer in the South? (*e*) The recent Italian immigrant, manual laborer in city? Sociological research is needed to define prevailing types, to evaluate their persistent and their "fluid" ideals.

5. Of the above types, which are "modal"—that is, statistically most numerous—from the standpoint of the vocational education of prospective homemakers? Which are most prevalent, or expected to be most prevalent, in given communities?

Into which types are the girls whose abilities and favoring home circumstances enable them to "go through" high school likely to fit? Into which types are the girls of a manufacturing city, who leave school at 14–16, likely to fit? What are the types likely to be filled by daughters of poor "renting" farmers? Are we to expect the flat or apartment home to replace the detached house in cities? in suburbs? Are home economics teachers expected to prognosticate the future availability of servant help—and for several income classes of homes considered separately? The probable extension of the apartment or flat type of dwelling? The possible evolution of coöperative housekeeping? Development of agencies for the coöperative or delegated care of small children? Future possibilities of "boarding" life in nurture of children? Coöperation of the father, on a short wage-earner's day, in duties of twenty-four-hour day homemaking? Probable future size of family in different social groups?

6. It is suggested that in class work, where not otherwise specified, the term "home" should imply these conditions: detached urban house, no servant, from four to six children, $900–$1500 income standard, American traditions. From this, as a point of departure, variants could be described. In many cities the "cold water" (no heat supplied), "walk up" three-to-five-room flat for workingman's families is becoming very common; it means normal number of children at least, no servants, income $700–$1000. Also the separate land-owner's farm home is very prevalent.

III. What Is the Vocation of Homemaker?

Homemaking a Composite Vocation: It is obvious that the vocation of homemaker is *composite* to an extent characteristic of only a very few other occupations. This remains true, notwithstanding the extent to which certain functions have in America been removed from the homes—such as weaving, teaching, food preservation, gardening, and, now, baking, brewing, and garment-making. *Compositeness* of vocation is ordinarily a sign of primitiveness. When human beings live under primitive, pioneering, or dispersed conditions, there is relatively little subdivision of labor and exchange of commodities. Every primi-

tive hunter, fisherman, tiller of the soil, warrior, teacher, and housewife is in large measure and of necessity a jack-of-all-trades. The home retains this character long after it has largely disappeared in manufacture, transportation and commerce, because the family is the most universal unit of *consumption* and especially of the productive processes that just precede or are intimately associated with consumption. Sociologically speaking, we can again affirm that *children* are the cause of the present compositeness of the homemakers activities. If children could be as effectively reared in barracks, hotels, or asylums as adults can live and carry on consuming activities in these elaborate organizations of specialized service, then we should speedily see the end of the highly localized home.

Organization and specialization of service lead to depth of knowledge, refinement of skill, and intricacy of managerial relations. The small "general" farmer, the country store-keeper, the teacher in a small high school, the village mechanic, the country doctor, like the housewife, must always experience the trials of realizing themselves less competent in the special arts, which they must attempt, than the specialists. Utopian suggestions that "homemaking" is (or ought to be regarded as) a "profession" render no service in mitigating the hard reality that for the great majority it must long continue a composite of ill-defined and imperfectly standardized arts.

The first step in the process of defining the vocation of homemaker is that of segregating for detailed consideration some fairly common and constant types of home. The second is to analyze, describe, and, perhaps, *evaluate* the various prevailing forms of skill, knowledge, appreciation, and ideal now found among those of the practitioners of this type of homemaking who would be judged to be slightly above the average by persons possessed of critical and common-sense judgment.

Analysis of Type Homemaking Vocation: Let us assume as the type to be considered homemakers in detached village or urban houses, no servants, family budget, $1000–$1200 per year, American ancestry, normal number of children (two or three at ages assumed for mothers—28–34), mothers of elementary school general education, no school education in homemaking. Call this type M. Taking one hundred of these at random, we

can for convenience classify twenty as A grade (excellent), thirty as B grade (good), thirty as C grade (fair), and twenty as D grade (poor). For purposes of determining prevailing requirements of the vocation we can confine ourselves to the B grade.

The vocational activities of these B grade homemakers can readily be classified under such major and minor heads as those given in the following table; and a consensus of competent critics could assign to these various groups of activities, for the type of homemaker under consideration, crude measures of their relative importance (weightings) along the lines tentatively suggested by the figures here arbitrarily assigned (it is assumed that total optimum competency would be rated at 10,000 units; and that optimum competency in any one division would be rated as given; and that individual MBx might be rated as shown):

TABLE I

CLASSIFICATION AND RATING OF ACTIVITIES OF TYPE M HOMEMAKER

Activity Group (Majors)	*Optimum Standards for Type M*	*Rating of Individual MBx*
1. Foods (buying, preparation, serving)	3000	2000
2. Clothing (buying, up-keep, making)	1500	1200
3. Household care and up-keep (beds, cleaning, etc.)	1000	900
4. Laundry	500	400
5. Care of children	3000	1500
Activity Group (Minors)		
6. Accounting	300	10
7. Sick nursing	300	250
8. Housing and furnishing	100	50
9. Adult sociability	150	150
10. Garden and yard	150	100

Detailed Analysis Required: But it is clear that such an analysis as that given above is too crude and general to serve for practical guidance. For one thing, it makes no distinctions between *skills* and related *technical* (or artistic and scientific) knowledge. Some homemakers are strong in certain skills acquired purely on the basis of imitation and "trial and success" methods under competent direction; and weak in technical knowledge. Some have

excellent technical knowledge but inferior skills. Possibly a third type of power (or appreciation) should also be distinguished, namely, social insight, or, more adequately, physical, social, and cultural insight. It is also probable that distinctions should be made between manipulative and managerial skills.

Furthermore, any adequate analysis must distinguish, weight, and evaluate numerous concrete subdivisions in the above scheme. "Skills" in preparing foods are not general, but often very concrete and specific. Skill in bread-making may coexist with lack of it in beefsteak broiling. Competency in making certain articles of clothing may be found alongside of low ideals of up-keep.

Let it be repeated that the first object of the analysis and evaluation suggested above is to ascertain what powers and capacities are now prevailingly found among homemakers of slightly more than average ability as found in a certain type or class. Such analysis should normally precede attempts to determine what powers and capacities the next generation of homemakers of similar groups should possess as a result of purposive vocational education. In much of current literature on the aims of home economics confusion exists because aspirations are not presented separately from diagnoses of existing conditions; and also because in diagnoses various types and grades of homemakers are jumbled. The problem of vocational education for the girl or woman who in all probability will direct the labor of two or more servants will undoubtedly be found to be different in many essential respects from that of the girl or woman who is almost certainly destined to carry the full load of homemaking by herself. No less important at certain points are distinctions between rural and urban homes, and between homes in apartments and homes in detached or semi-detached houses. Scientific study is certain to reveal other classifications of importance, based, perhaps, upon climatic, occupational, and other considerations.

IV. Sociological Scope and Standards of the Homemaking Vocations

1. There are in the United States some 16,000,000 women, chiefly married and widowed, whose principal vocation is home-

making. Of these probably 90 per cent are unable to divide work or responsibility with co-laborers; hence they must carry on all phases of homemaking work by themselves—conspicuously the procuring, preparing, and serving of food, the making and up-keep of clothing, laundry work, house care, care of children, etc. For women of this class, homemaking, therefore, at least among white people, presents relatively few variable features, as between East and West, North and South. Hence, homemaking is the most numerously followed of all vocations. Next to it, in point of numbers, is "farming." But "farming" includes many very unlike vocations, from cranberry, orange, asparagus, cotton or sheep growing as specialties to dairy, grain, market garden or "general" farming.

Domestic service for hire, or favor—specialized and unspecialized—may be classified here as "assistant homemaking."

2. From the standpoint of the sociologist the central fact in homemaking is the rearing of children. The monogamous marriage and the home have evolved side by side, most conspicuously in the north temperate zone, probably in chief measure because of their suitability to the rearing of the children—to the making out of children the kind of men and women who could best coöperate in producing and sustaining the valuable elements in civilization. All adults must, of course, have places of temporary or permanent abode; but the beginnings of the most realistic home are laid when a man and woman form a partnership in marriage and soon face their responsibility of rearing through the "prolonged infancy" the children born of the union.

3. Endless conventions, customs, and laws have been evolved to perpetuate and to improve the home as a social institution. Most conspicuous is the division of labor between husband and wife. The prevailing American standard, which expresses in fullest development the standards aspired to in other countries, requires that the husband shall be the "money getter" of the family—that he shall produce the marketable goods (or services) wherewith goods for the home can be purchased. The wife is expected to do the "elaborative" or preparatory work required in the home to make goods purchased in more or less raw form suitable for immediate consumption. To the mother falls the prolonged and sustaining care of children, especially when small.

To the father falls induction of boys, as they mature, into productive service. To the mother falls the vocational "by-education" of the girls.

a. Space need not be taken here to elaborate the biological concomitants of these sex differentiations of work, attitude, and responsibility. Doubtless the respective "natures" of men and women have become somewhat biologically differentiated toward the best rearing, as well as toward the best begetting and bearing of children. On the other hand, many apparently deeply rooted differentiations are founded only in the social inheritances of customs, conventions, and other "social" habits and traditions. These last can, obviously, be much more readily changed than the former.

b. A secondary function of the home is to reinforce and develop personality and community of interest in the adult members of the family group. For these it gives a place of rest and some forms of recreation, protection from invasion of weather, and privacy for the social intercourse valuable to the family group.

4. From the sociological standpoint, therefore, the primary standards of good homemaking are to be found, first in the children brought to approvable manhood and womanhood through this agency; and, second, through the enrichment of personality (health, sociability, culture) accomplished for its adult members.

a. It is obvious, of course, that each age brings new conditions to assist or restrict the home in the discharge of its social obligations. Schools take over certain functions; adults resort to clubs for sociability and other recreation; the man's workshop is removed to a distance, so that he loses contact with adolescent boys; many productive operations that once gave variety to the work of the wife and opportunities to share work with children are being removed from the home.

V. The "Total Problem" of Vocational Education for Homemaking

One great mistake has frequently been made in constructing programs or curricula of vocational education in that teachers

and administrators have proceeded to work with existing limitations always in mind from the outset. This procedure is fundamentally unscientific. Programs and curricula should first be worked out on the assumption of *optimum* conditions; then revisions, corrections, reductions, and other accommodations should be made with reference to known and defined limitations or other modifying conditions.

For example: Assume the problem before us is that of providing vocational homemaking education for certain women who are usually factory hands from fifteen years of age to marriage, who commonly marry at from 22 to 25, whose family income from marriage to forty-five will range from $1000 to $1500 (the mother not being a wage-earner), who will rear from four to six children, and who will live in small urban or suburban houses. It is desired that this homemaking education shall function in reasonably immediate competency when first children are born. Let us assume that we are working in a manufacturing city with large numbers of recent immigrants.

We know that the actual situations confronting us are endlessly varied. Some of the girls go to work at fourteen, having finished only the fifth grade; others leave after going half way through high school. Some at fifteen have been well trained in home craft by their mothers, some possess little or no skill. Some have been wise "little mothers" and know much about the care of babies, even at twelve years of age; but most of them will have learned nothing of child care by the time their own first baby arrives. Some of them will approach marriage with considerable appreciation of the responsibilities of homemaking, others will rush in heedlessly. If a good day vocational school of homemaking were available, a few of them would stop work and attend it for one or three months in preparation for their new vocation; but most of them would not. If well advertised evening classes in "short units" of homemaking were available, many girls would come for some months, but their interest would center chiefly in making articles of personal wear or adornment or in cooking dishes suitable for "parties"; but a few would do genuinely productive project work in evening classes.

Confronted by this heterogeneous and confused situation, how shall we proceed to devise curricula? Efficient procedure cer-

tainly requires that we first determine and document in detail curricula and programs on the assumption of clear-cut and optimum conditions.

1. We can assume as basal these factors: (*a*) All the girls and women we are to deal with are wage-earners from 14–17 to 21–25. (*b*) All will marry, and have families. (*c*) All will be wives of workingmen, having family incomes of $900–$1500. (*d*) It is desirable that all families shall live in accordance with "good" American standards.

2. For the purposes of getting our "total" or "complete" curriculum defined we can assume the existence of these conditions: (*a*) Women engaged to be married and eager to qualify for the vocation of homemaking. (*b*) The prior experience or home training of these women is so slight and ineffective as to be negligible. (*c*) The woman free to give three or six months as may be required to "full time" (eight hours daily) for this vocational education. (*d*) The woman living with her parents in a small home which can be used in any and all ways as a "productive shop" for educational practice in homemaking. (*e*) The woman living in the midst of neighbors among whom she can find opportunities to care for sick or to assume charge of infants when work of this character becomes essential to her program. (*f*) The school so staffed and equipped as to give all needed individual instruction, supervision of home projects, laboratory work, related reading, etc.

In the light of these conditions we produce curricula, programs, courses, projects, etc., having paid due regard to the various *kinds* of educational products to be produced—skills, applicable knowledge, ideals, managerial abilities, appreciations, etc. Overzealous or "theoretical" teachers might well consider warnings and queries at this point: (*a*) We are not expected to train these young women for a "profession." (*b*) In view of the multiplicity of operations involved in homemaking, we are not expected to train these young women to be as good cooks as hotel chefs, as good nurses as hospital graduates, as good seamstresses as those working for wages, or as good teachers of little children as kindergartners. Overambitious standards or ideals here defeat their own aims. (*c*) What *additions* to their powers and capacities can we expect these people to make during, say,

the first five years of married life, as the burdens of homemaking rapidly increase? (*d*) Remember, always, that technical knowledge not built on experience is apt to be a useless possession, whereas skill, even if unaccompanied by technical knowledge, has a large place in the world. The ideal, of course, is skills, manual and managerial, illumined by technical knowledge and social insight.

3. Having made our curricula and programs for the situation described above, we can then proceed to make adaptations and adjustments of it for situations like these:

a. Where young women have had a substantial apprenticeship in their own homes.

b. Where it is not practicable to reach young women, but it is practicable to provide two to six hours weekly of training and instruction in regular public schools during ages 12 to 15 or 16.

c. Where young women are eager for homemaking education, but home facilities for training are unavailable.

e. Where no school facilities are available and teachers must do all work in the homes of the girls.

f. Where women can or will take training only after marriage, but where their own homes can then be extensively used for that purpose.

VI. The "Case Method" of Study

Probably the most profitable methods of approach to the problems here under consideration from the standpoint of the determination of desirable objectives of vocational homemaking education are to be found in the provision of curricula and programs for typical "case" situations, as illustrated below:

CASE A

A woman, 22 years of age, expecting to be married, wishes six months' full-time training in homemaking. She has been an industrial wage-worker for seven years and knows nothing on the "doing" side about homemaking. She cannot cook, set a table, make a bed, or patch a dress. She has had no experience in handling babies, entertaining small children, caring for the sick, buying furniture or keeping household accounts. As a

"boarder" or consumer in her own home she has the usual "appreciations" of good cooking, well-kept rooms, etc.

Assume that at 30 she is to have three children, that she will have a five-room house, in a suburban or village community, and that the family income will be $1200 annually. Assume that after marriage she will have to rely largely on herself (not having a mother or other elder person living with her), and that she is ambitious to start married life as a good worker in her new vocation as homemaker.

Assume also the availability of sufficient means to give her a good vocational education—a home as a workshop to meet requirements for prepared food, patched clothing, care of babies, on a strictly productive (as opposed to "exercise") basis, as well as books, laboratory facilities, etc.

Problems to be Solved

Problem 1. What should be the specific aims of the six months' vocational education to be provided?

Problem 2. What amounts of available time (assume 150 working days of eight hours each) should be given respectively to:

Majors

a. Foods: selection and purchase, preparation, serving, disposal, re-use, dishwashing, etc.

(*a*) Skills, practical performance.
(*b*) Related technical studies.
(*c*) Related social studies.

b. Clothing: selection, purchase, making, remaking, repair, up-keep.

(*a*) Skills, practical performance.
(*b*) Related technical studies.
(*c*) Related social studies.

c. Care of house: bed-making, sweeping, keeping articles in order; cleansing furniture, wood, glass, stoves, bathroom fixtures, etc.; making minor repairs to lights, plumbing, locks, etc.

(*a*) Skills, practical performance.
(*b*) Related technical knowledge.
(*c*) Related social knowledge.

d. Laundry, including ironing, etc.
(*a*) Skills, practical performance.
(*b*) Related technical knowledge.
(*c*) Related social knowledge.

e. Children, including sociability and by-education.
(*a*) Skills, practical performance.
(*b*) Related technical knowledge.
(*c*) Related social knowledge.

Minors

f. Household accounting, including especially planning of expenditures, budget making, use of inventories, segregation of expenditures, investment of savings, etc.[1]
(*a*) Skills, practical performance.
(*b*) Related technical knowledge.
(*c*) Related social knowledge.

g. Housing and furniture: selection, fundamental or long-period readjustments and renovation (not included under "care of house").
(*a*) Skills, practical performance.
(*b*) Related technical knowledge.
(*c*) Related social knowledge.

h. Care of sick.
(*a*) Skills, practical performance.
(*b*) Related technical knowledge.
(*c*) Related social knowledge.

i. Adult sociability and social culture (excluding sociability with children).
(*a*) Skills, practical performance.
(*b*) Related technical knowledge.
(*c*) Related social knowledge.

j. Yard and garden.
(*a*) Skills, practical performance.
(*b*) Related technical knowledge.
(*c*) Related social knowledge.

Problem 3. What order of presentation of the above subjects would be followed?

[1]For some type of homes, and perhaps eventually for all, this should be a major.

Problem 4. In each case what provision would be made for training in practical skills?

Problem 5. How should related technical knowledge be given, and in what relation to practice on productive, useful, skill-forming work?

Problem 6. Should "practical" exercises (non-productive) be accepted in lieu of productive work?

Problem 7. How should related social knowledge be given?

Problem 8. What tests of final competency in each case would be provided.

CASE B

Identical with Case A, except that the total time available for training for vocation is three months, or seventy-five working days, of eight hours each.

CASE C

Identical with Case A, except that woman must continue wage-earning, and can give only four (evening) hours weekly for sixty weeks, divided between two years.

CASE D

Identical with Case A, except that woman can give only time after she is married and living in her own home. Can then give six afternoon hours in school and twenty-four (or more if necessary) hours to productive work in her own home, weekly, for sixteen weeks. Assume teachers with ample time for visiting and supervision of home work.

CASE E

Farmer's daughter, 22 years old, eighth grade education. Has always helped in farm home and can perform all ordinary operations with the moderate efficiency produced by home apprenticeship, including care of small children. Has little technical knowledge or social insight relative to the homemaking vocation. Expects to get married within a year, to have a farm house (northern Mississippi Valley), with cash budget of $600 yearly and income in "kind" (owned house, water, wood, vegetables, fruit, milk) equivalent to $250. Assume three children at age of thirty and only occasional household help.

Assume possibilities of her attending full time for three months a vocational school of homemaking distant 100 miles from her home. Assume this school to possess all reasonable equipment and teaching force required to carry into effect such programs as it might decide to be desirable for students of the class of Case E.

Problem 1. What would such a school establish as its standards of vocational proficiency for such a woman? Classify objectives separately under the categories given for Case A, distinguishing under each between practical skill, related technical knowledge and related social insight.

Problem 2. How will the school test and evaluate the powers and capacities in homemaking possessed by the woman at entrance? How will it correlate these with the new powers and capacities it will seek to produce?

Problem 3. What will such a school seek to offer as training and instruction under each of the categories given in Case A? Or, what will be its programs of instruction?

Problem 4. What will such a school provide in the way of facilities for practice? In foods? Laundry? Child care? Sick care? Housing?

Problem 5. How will such a school avoid stressing urban conditions? How can it keep solidly in touch with rural conditions?

CASE F

Identical with Case E, except that the woman has gone to high school and normal school and has taught two years, as a consequence of which her skills and technical knowledge of homemaking at the outset are negligible while her appreciations are normal.

CASE G

Identical with Case E, except that the woman can give three hours daily to the homemaking school, located one hour away, and the remainder to her mother's home, where productive educational work can be done.

VII. Some General Principles

In the framing and passage of the Smith-Hughes Act, granting national aid to certain forms of vocational education, home eco-

nomics was included at the eleventh hour. A distinguished member of the Federal Board for Vocational Education has publicly asserted that the home economics provision was a "monkey-wrench thrown into otherwise perfectly good machinery." Many teachers of home economics in elementary and especially in secondary schools who were serenely pursuing the even tenor of their way before the enactment of the Smith-Hughes law now find also that that law is playing the disastrous part of money-wrench in their heretofore smooth-running machinery.

What is the vocational education that prepares for homemaking or the work of housewife? Under what conditions is home economics "vocational"? What else can the subject be, if not vocational? These, and many other similar questions are disconcerting, if not haunting, many of our home economics teachers to-day. They are destined to put to the test not a few of current traditions as to aims and methods of education in fields only distantly related to the homemaking vocation. They show the utter inadequacy of some current interpretations of educational values made by men of strong academic prepossessions.

The immediate difficulties confronting home economics teachers arise from a few simple but more or less conflicting conditions: (*a*) Congress enacted the Smith-Hughes law to aid vocational education, and only vocational education. (*b*) The public has all along believed that the home economics courses which had become so generally established in progressive school systems were vocational in intent and results. Hence the public has insisted that schools maintaining these courses should proceed to claim their due share of "Smith-Hughes" money. (*c*) The administering authorities have in some cases denied that home economics courses as ordinarily found are in fact vocational, and have insisted on new and sometimes difficult modifications.

Now, it is well known that many differences of mind in this imperfect world are due to failures to define terms and standards. How far is this the situation here? On the other hand, sore contests always arise when progressive action is being taken, the very nature of which necessitates discarding of familiar habits, and readjustment of standards. The authorities charged with the enforcement of the law claim that such is often the case here.

The history of the evolution of vocational education shows how present confusion in almost all fields of vocational education arises under both the conditions stated above. A few basic inquiries will make this clear. What does "vocational education" mean? Does it include all those forms of experience, instruction, and training, in school and out of school, which, superadded to the individual's native endowment, finally give him that which we recognize as vocational competency? Then it will be admitted that, in the sense used, every one, substantially, for thousands of years, has received a vocational education—good, bad or indifferent, complete or incomplete, wasteful or economical, as the case may be. In that sense, then, every housewife and every domestic servant in the United States to-day has received some vocational education, although few have received any part of that education through an agency which could properly be called a school.

We are now on educational bedrock. When and why do we seek to establish schools for vocational education to supplement or replace the other agencies? Only when these other agencies are insufficient to the needs of the time and when a type of a school is invented that can give the education. That has been the history of vocational schools of war leadership, medicine, priesthood, pharmacy, navigation, law, civil engineering, stenography, telephone switchboard operating, nursing, and elementary school teaching. It will probably be the history of schools of journalism, acting, indoor salesmanship, waiting on table, poultry farming, house carpentry, school nursing, automobile repair, homemaking and engine firing. (It can hardly be said that we have vocational schools for this second group of vocations as yet; current attempts are hardly beyond the experimental stage.)

Do vocational schools at first undertake to give *complete competency* for a given vocation—complete, that is, as reasonably practicable for the age at which graduation is expected? Rarely ever. Sometimes they assume a previous period of apprenticeship—as did earlier schools of law, medicine, engineering, and teaching (under the pupil-teacher system in England). Sometimes they have counted upon what is in effect an apprenticeship subsequent to schooling—as do present-day schools of law, medicine, stenography, and engineering. Sometimes, however,

they have paralleled practice and study in order to dispense with *prior* and *subsequent* apprenticeship, as do present-day schools of nursing and elementary school teaching and as some engineering, trade, and farming schools are endeavoring to do.

It is now good usage to call that vocational education in schools which presupposes previous or concurrent practice of an occupation, *extension teaching;* all that instruction in the art, science, mathematics, and language of a vocation which anticipates or precedes practice of a vocation, *technical instruction;* and all that vocational education which undertakes to teach practical skill and related technical and social knowledge in close correlation as *basic vocational education.* (But technical instruction not directed towards, and usually functioning in, vocational practice cannot properly be called vocational education.)

In discussing *standards* for vocational education let us frankly recognize that many professional schools, notwithstanding the years of history behind them, are far from having yet determined, with any useful degree of precision, either their aims or the validity of their means and methods. Even the best engineering schools are to-day only higher technical schools, although some are now attempting, through summer practice, to give a certain amount of skill and managerial ability. In general, their faculties still satisfy themselves with the easy assumption that practical skill and mangerial powers are things that must be learned in "the school of experience"—with all the wastefulness and maladjustment which that involves. Most varieties of commercial education are still on an essentially technical basis—they do not prepare for a given vocation, but only give the instruction supposed to be useful to one beginning what will be practically an apprenticeship in the practice of the vocation. The one substantial exception is stenography and typewriting—here the candidate is, in the best schools, actually prepared to begin at once the commercial practice of her vocation.

Probably the most disputed question in recent and contemporary movements for the extension of vocational proficiency in various callings has been the value of technical instruction in advance of practice. Long before we had basic vocational schools for such occupations as machine-shop practice, electricity, print-

ing, carpentry, homemaking and farming, our technical high schools had developed courses of technical instruction in, or somewhat *related* to, these callings. But practical men have always been very skeptical of the results of such courses. It is true that these schools can easily be administered so that they will select the most promising candidates for the respective occupations. A little judicious advertising and testing of entrants will accomplish that purpose. Having selected personalities that are certain to attain success in their callings in any event, it is easy and natural, reasoning *post hoc ergo propter hoc*, to attribute the success of these students to the instruction they received in school. During recent years a classic example of this kind has been given very wide publicity. A certain technical high school collected data which showed that boys leaving school at fourteen and commencing work at, say, $5 per week, will have been advanced to the point where at thirty years of age they will be earning, say, $15 per week; whereas graduates of the technical high school, possibly starting at age of 18 at only five or six dollars per week will be earning twenty-five to thirty dollars per week at the age of 30. Now, admitting the facts, they, of course, prove nothing as to the value of technical high school instruction and training. Every observer of schools knows that only very high-grade boys enter technical high schools; that of these only the best survive the first year or two; and that the graduates are a very picked lot, and destined to success in life, schooling or no schooling.

Among all well-informed educators the conclusion is now generally held that for a large majority of callings technical instruction in advance of practical applications—which usually means applications in productive work and under commercial conditions—is almost valueless, and sometimes decidedly harmful. It is obvious that electrical engineering offers a relatively large volume of technical knowledge. A person of exceptional capacity for abstract thinking can spend several years in mastering this knowledge—as organized in mathematics, mechanics, chemistry, engineering theory, etc. Then he can begin practice, and apply his knowledge as he finds occasion. But every man familiar with the conditions of higher education is aware that only from one to three per cent of persons between eighteen and

thirty years of age are able to develop the powers required, according to current standards, of electrical engineers.

In pattern-making, on the other hand, skill bulks large and technical knowledge small. The men who ordinarily enter pattern-making are usually strong in "mechanical instincts" and not so strong in those powers of abstract thinking which are exemplified in the study of mathematics. Every educator knows that appeals to common experience will help us here. We should hardly expect a person to profit greatly from several months' instruction in the theory or technique of swimming before he enters the water. The writer once saw an advertisement, "Horseback-riding taught by mail," but he retained the hope that the recipient of these lessons had a horse to practice on while learning. In training a man to be a barber or a girl to be a waitress, it is apparent that only a very little advance technical knowledge could be given with profit.

In analyzing scores of occupations from this standpoint, it is apparent that two types of considerations are involved. (*a*) What, in any given vocation, are the relative values of skill and managerial abilities on the one hand, and what we call related technical knowledge on the other? (*b*) What are the various *learning capacities* of those who are likely to enter such vocation?

VIII. Applications of These General Principles to Homemaking Education

It can be readily understood from the foregoing discussion what have been some of the obstacles encountered in various endeavors to develop vocational homemaking education. In earlier stages, when technical knowledge was imperfectly developed, only the practical arts were taught—cooking, sewing, bedmaking, etc. Often, of course, these subjects, as taught in schools, were very superficial and artificial. Then came the enormous development of technical knowledge, especially in the departments of foods, household accounting and household management. Under the head of "domestic art" similar developments of technical knowledge in departments of clothing, housing, etc., were attempted, but with less success.

A second stage of evolution in homemaking education came when, under the collective name of "home economics," courses based on the productive activities of the home assumed a largely technical character—it must be remembered that *laboratory work*, *experimentation*, and *practical exercises* are integral parts usually of technical instruction, since, almost never, are they designed to produce basic skills.

Hence the general demand of competent critics to-day that home economics education, seeking to meet requirements of vocational education for homemaking shall: (*a*) provide for the necessary practical experience in productive work required to produce enduring skills, manual and managerial, if it is to be regarded as *basic* vocational education; or else (*b*) connect positively and purposefully with previous practical experience if it is to be regarded as *extension* vocational education.

It is denied that vocational competency in homemaking as that is found now in millions of American homes, and as it is desired on behalf of millions more in the future, can be more than slightly produced by technical instruction alone, even if that include laboratory and amateur productive exercises.

It is recognized that some home economics departments take charge of school lunches. This is good productive practice as far as it goes, even if on excessively large scale for home food preparation, but what schools cover the various fields of foods, clothing, house care, child care, laundry, etc., in this practical way?

IX. The "Project Method" of Teaching Homemaking

1. In the total process of producing homemaking competency to function in adult life, we should recognize several distinct stages or even different areas of possible operation. For example:

a. In girlhood, from six to twelve, it is obviously possible for the mother or for a teacher who can control conditions of time, motive, and familiar implements as can the mother, to train the girl in various specific skills—tea-making, dusting, outing care of infant, darning—and to attach to these and related operations, appropriate technical knowledge, appreciations, aspirations, and ideals.

b. From ten to sixteen, at least during the time of transitions from play motives, interests and powers to work motives, interests and powers, it is clearly practicable in the case of a large proportion of girls, to elicit fairly strong interests in *amateur* homemaking—when the *desires* and *motives* are for results functioning as in the adult world of work, but the appreciations and powers are still those of the play stage and spirit, unwilling to tolerate long routines, to search for technical knowledge, to undergo drill or training.

In many cases this would seem to be an appropriate time for rich offering of *household arts* as *general education.* Appreciations, insights, aspirations, even ideals, can easily be formed in relation to novel situations in homemaking, where familiarity with, and enforced drudgery in, domestic operations have not bred the blasé attitude or even contempt. But teachers should be careful not to confuse the results of this general education with those to be derived from effective vocational education.

c. From fifteen to eighteen would seem to be an appropriate time for offerings of *basic* or *extension* vocational homemaking to girls who could see clearly ahead of them wage-earning employment as assistant homemakers, as trained employees in the homes of their mothers or others. For the present, of course, little can be done here because popular valuations of the vocations of "domestic service" are so adverse that self-respecting and ambitious girls seek non-domestic vocations by preference.

d. For young women from eighteen to twenty-five, who expect to become independent homemakers, there exist large opportunities for: (*a*) extension vocational education for those who, like many farmers' daughters, have already had extensive basic experience in a large variety of homemaking operations; and (*b*) basic vocational education for those who, like a large majority of factory and office employees, have had almost negligibly small experience in, or even contact with, domestic operations. Motives may be strongest just before or soon after marriage.

e. Other stages or areas could easily be defined, especially by taking account of different social classes.

2. The "project" is, from many points of view, the best educational device for basic vocational education. It has not yet been tried extensively in homemaking. Its best developments

are found in agricultural education. As applied to vocational education, the project is a "job" or unit of productive work, usually of a utilizable or even marketable character, selected and organized as constituting a valuable stage in an educational process.

3. Homemaking projects illustrated:

a. A girl or woman of no previous experience undertakes to make ten shirtwaists of exactly the same pattern and material. From the making of the first she gets a large amount of new experience, accompanied by a certain amount of technical knowledge, appreciation, etc. In making the remainder she increases her skill, organization of effort, etc. Parallel with her work, she can be helped to insight, as to *social, hygienic,* and other general aspects of her work. If, after the making of ten shirtwaists, further increments of permanent skill of applicable technical knowledge would be small, then the educational value of the project has largely been realized. Further making of shirtwaists would be valuable for production rather than education.

b. An inexperienced girl, directed by a competent teacher, gives three hours daily for a month to providing the breakfasts of a family of six. Linked up with the actual preparation of the food and washing of the dishes, will be such technical matters as planning variations in menus, selecting and buying materials, keeping suitable accounts. Related studies of nutrition, markets, technical processes, etc., can easily be linked up to, and interpreted by, this project by the teacher through lectures, readings, problems, etc.

4. Scores of other suitable projects, large and small, can be devised. Care of the outing hours of an infant for two weeks; care of a bed-chamber for two weeks; performance of family washing for four weeks; w ing and dressing of a child or infant for two weeks; baking family bread for a month; canning four dozen jars of plums; preparation of five successive Sunday dinners; keeping the accounts of a family for six months on basis of "slips" supplied by the family; keeping clothing of three children in repair for three months, etc. For service in schools, those projects should be analyzed in detail, reference readings specifically indicated, and related technical and social studies analyzed in detail.

5. Where the previous practical experience of the student justifies the offering of *extension* rather than *basic* vocational courses, there may be less place for projects, and relatively more for topics of study, collection of materials and reports, problems for analysis, laboratory exercises, investigations, etc.

a. For example, a farmer's daughter, age twenty, coming to a short-course, full-time school, who has had much experience with her mother (frequently supplementing her), may be most in need of technical knowledge which she can relate to her already well-assimilated experience. She may most need explanations of the processes she has learned by imitation or rule of thumb methods, including improved processes, accounting, etc.

b. Where home economics is taught as one subject in a curriculum of general education—being paralleled by courses in English, mathematics, physics, etc., it might be possible to give the home economics a vocational flavor by offering it, in the case of pupils of known home opportunities, as *extension* instruction; but the difficulties are great, and the method is seldom used.

c. The "project" is often confused with an "exercise" or even with a "demonstration." For the sake of explicitness it would seem best to confine the term to a unit of work which combines productive and educative possibilities, and possessing possibilities of repeated performance so as to give skills.

6. Problems of Project Method:

a. What should be the "magnitude" of a project? This partly dependent on external character of the work, partly on psychology of learners. Young learners need smaller and shorter time projects than older. Every project should take the learner beyond the play stage of experience into work stage. Short, fragmentary experiences, even in fields of drudgery may, by novelty, sustain play interest for a time. For girls twelve to sixteen, it is surmised that valuable projects should require from ten to fifty hours, no period of application being less than two, and preferably four to six hours. For young women, projects may require 20 to 60 hours, optimum single periods of application (in productive work and related study) being four hours.

b. What should be the "compositeness" or "complexity" of projects? For best learning purposes, probably, a project should

center in one natural or normal "strand" or field of activity. Within one day, a housewife dresses children, prepares meals, makes beds, etc. But a learner can probably make best progress by focusing effort on one or two of these recurrent series of jobs, so as to attend to acquisition of skills, interpretations, etc. On the other hand, the related minor jobs normally belonging to a major job should be included in the project. A cooking project not involving related cleaning up; a laundry project not involving subsequent ironing; a breakfast project not involving buying and accounting—these would probably be unwisely broken.

c. How can related technical knowledge and social insight be integrated to the project? Eventually we shall probably have hundreds of projects given in detail in booklets, with references to related readings, etc. For the present the teacher should seek to build about each project a series of readings, technical and social.

d. Should coöperative projects be provided? Occasionally, but not to an extent which will prevent fullest acquisition of individual powers (of execution) and capacities (for appreciation). Coöperative sociability projects are especially good—giving a reception or entertainment, relieving a poor family. Probably also certain projects necessarily of an "observation and report" character—planning the location of a farmhouse, furnishing a kitchen, etc., could be of a coöperative character.

X. Federal Board's Bulletin No. 28

(*Organization and Administration of Home Economics Education*)

This bulletin "may be considered as an official answer to the many inquiries concerning matters of policy in home economics education received by the office of the Federal Board."

In general, the definitions and interpretations found in this bulletin represent the best of available knowledge and practicable expectations in homemaking education. The problems suggested below, dealing mainly with questions of objectives, are expected to arise as further developments take place in this field; but for sake of concrete analysis these problems are here stated as of the present, and with no intention of conveying adverse criticism.

1. It is unfortunate that the law uses the term "home economics" which describes neither a vocation nor the common characteristics of a group of vocations as do the terms "commercial," "professional," etc. The words "home economics" will long continue to connote a group of technical studies only, in spite of all effort to the contrary. Educators should now make concerted efforts to settle on more serviceable terminologies.

2. Why should it be held that in "separate vocational schools of home economics" which have "but little articulation with the other phases of work of the school system" the courses offered "are usually two years in length, although a few schools offer four-year courses"? Are these arrangements defended? Ought not administrators move steadily toward short, intensive courses, each composed of short units, in vocational homemaking? Will not "long courses" perpetuate the weaknesses of "long course," over-technical, insufficiently practical, industrial, agricultural and commercial courses?

3. Is it well to try to force the word "laboratory" to include the meanings given on page 33 and elsewhere? Etymologically, the word "laboratory" may mean the same as workshop or place of productive work; but historically and practically, in thousands of industrial establishments, colleges, and other centers of research, it now means specially equipped places of experimentation, investigation, testing, and study. It once meant, also, a place of *production* of drugs; but even this meaning is becoming obscured. To try to use the term in a special sense as designating a place for "practice in all the home activities which are taught within the (vocational) school, such as housekeeping, garment-making, etc.," is to court endless misunderstandings, misdirected effort and perpetuation of old traditions of technical instruction. A laboratory is *not* a place for the *practice* of a vocation: that is a farm, shop, office, kitchen, home, or school. Let a homemaking school, using "local (or actual) homes" or "school homes" for practice, have one or more small laboratories for testing, experimentation, etc.; but call the practice place a school home or an actual home.

4. Is it wise to provide so extensively for the necessarily artificial equipment suggested on pages 19 and 20? Homes are found in large numbers within a dozen blocks of almost all

except country schools. These are real homes, where real productive work must be done. Judging by experience in other fields of vocational education, artificial equipments of this kind can be used for genuinely laboratory purposes and for demonstration purposes, but never effectively for practice purposes. More readily than in almost any other field it should prove practicable in homemaking to establish coöperative or part-time arrangements. To realize the maximum benefits, these should be on a project basis.

5. "Vocational subjects to be selected (for a course in vocational home economics) should be determined by an analysis of the occupation." This is, of course, indispensable, but it should be noted that, for practical purposes:

a. Such an analysis by *strands* of work or *types* of daily duty is almost valueless unless it also somehow indicate *degrees of proficiency* in each. All homemakers in America now, the very poor no less than the good, can cook, serve, repair clothing, care for children, buy furniture. But we want the next generation to do these things *better*.

b. Because of the few fundamental types of homemaking and the universality of home activities, central authorities (state or, preferably, national) can make these occupational analyses to best advantage. Individual teachers need much help here, especially while standards are so vague. As suggested before, home economics teachers are usually insufficiently equipped with practical knowledge of home productive processes (as carried on in actual homes) as these should be scientifically analyzed, described, and evaluated.

6. "The law provides that schools or classes giving instruction to persons who have not entered upon employment shall require that at least half of the time of such instruction shall be given to practical work on a useful or productive basis." But the Federal Board here holds "practical work on a useful basis" to mean "instruction in vocational subjects designed as preparation for homemaking." Experience will undoubtedly show that this interpretation is indefensible either as good law or good pedagogy. Practical work on a useful basis is just as capable of recognition and of being provided in homemaking as in gardening, dressmaking, carpentry, elementary school-teaching, and hospital practice.

7. Home projects are recommended (pp. 28–34). But the rank and file of teachers can make little or no progress in home project work until the leaders shall have worked out guidance materials no less elaborate than are those now found for laboratory practice in technical instruction. Many model projects worked out in utmost detail, and hundreds in outline involving close adjustments to varying conditions, are required as preliminary to any effective utilization of the project method. These should be available in booklet form.

XI. Household Arts as Liberal Education

It is very important that schools of general education, and especially those dealing with girls from 12 to 16 years of age (the period of true amateur spirit of production) should offer courses of household arts, conceived very much as are now home gardening, scouting, and the best manual training, as a means of genuine liberal education. Such courses should preferably be elective, should occupy from two to four hours weekly, and should center in "project" work and general inspirational reading. For a few girls vocational skills and knowledge will doubtless accrue from these courses, as they do for boys in home-gardening and shopwork; but unless these are regarded as incidental products the "liberalizing" spirit of the work will be spoiled. Probably appreciations and ideals of ultimate vocational significance will also accrue for many, but these also should normally be regarded as incidental or secondary accompaniments for these ages of effective liberal education. A few general theses are submitted:

1. The fundamental difficulties now encountered in realizing valuable results from home economics instruction by departmental teachers with girls from 12 to 16 years of age are due in large part to confusion of purposes between vocational and liberal. The courses offered constitute minor offerings in schemes of education primarily liberal or general; the specialized teachers have in view ends that are somewhat vaguely vocational, at least so far as technical instruction can serve these ends under the circumstances.

2. The primary purpose of schools for children from twelve to fourteen years of age is the giving of liberal, as distinguished from vocational, education. For pupils who elect to continue their general or liberal education in regular high schools, primary purposes should also be found in liberal education. There is no evidence that a small amount—one-tenth to one-third—of total time available, given to vocational education, can be made to function as assured vocational competency.

3. Household arts for girls from 12 to 16 years of age (and, if motive can be enlisted, for boys as well) can certainly be made a means of liberal education. To effect this will probably require some important modifications in the means and methods now usually employed.

4. The objectives of liberal education are less easily defined than those of vocational education, the most visible and measurable outcome of which is power of producing in a specified field and for a prolonged period, valuable service or goods, commonly of the kind called "exchangeable" and the exchangeable worth of which is usually for convenience given a money value which readily serves as a measure. "Liberal" education has as its objectives the product of a variety of qualities, many of which may be included under such terms as appreciations, tastes, sentiments, ideal valuations, ideals, insights, understandings. Liberal education in a given field—language, literature, science, sociability, art, nature, society, religion, government, agriculture, household arts, urban surroundings, etc., etc.—seeks the humanistic ends of deepened and widened social sympathies.

It is very difficult to get teachers to understand the difference between, for example, vocational training and amateur execution, because too few teachers have ever been definitely trained for their vocations, as have been physicians, nurses, locomotive engineers, dentists, military officers, and architects. College professors, superintendents, principals of schools, high school teachers, and home economics teachers are rarely, if ever, trained to a determinate work of *teaching*. They have received much instruction, of course, which, more or less vaguely, has been assumed to be necessary to their success as teachers or executives. But for the rest they have "picked up" their vocations in a naïve, primitive, and more or less "hit or miss" fashion. Hence, educators find it

exceptionally difficult to form distinct ideas of what is meant by specified specialized vocational training.

5. What will be some of the means and methods of "liberal" household arts education?

a. It must not be obligatory. The girl must be attracted to it, not driven to it.

b. It must, to the maximum extent practicable, use the girl's own home, yard, bedroom, mother, father, brothers and sisters, pets, dress, health, and aspirations as means of objective interpretation, but always only in the friendliest coöperative spirit. Nothing forced or inquisitorial will do here. To a large extent, teaching must be impersonal, reference always being made to "third parties."

c. Much reliance must be placed on stimulating reading. We have hardly begun yet to produce readings idealizing and interpreting the home, as the army, scouting and business enterprise have been idealized for boys. Results of individual reading must, of course, be socialized by conference, discussion, reports, etc.

d. The demonstration of standards by "model apartment," house, room, article of furniture, curtain, bed, set table, dress, home apparatus, should play a part as objectifying means, but due allowances should be made for the "soullessness" of these when they are not in practical operation or use.

e. Demonstrations of process—cooking, clothes-making, bed-making, washing of baby, gardening—give vitality and concrete interpretation of standards. The apperceiving powers of girls are obviously great here toward the formation of tastes and standards.

f. Projects are especially valuable as educational means, and naturally the majority will be "home projects"—that is, the inspiration and direction will come from the school, but the time, place, and, largely, the means of execution will be provided by the home. The range of projects offered by the school should be as extensive as practicable so as to give utmost latitude for choice by learners. Projects for purposes of liberal education should possess elements of novelty, appeal to creative powers, and should enlist all that can best be summarized as "amateur powers."

6. What would be some of the specific objectives of household arts organized as a means of liberal education for girls from 12 to 16 years of age?

a. To help the girl to see her own home in its most ideal light. All over southern France, we read, the war-dislocated women will take even one room, a bed, a trunk and a little stove and will make a nest, a home, a haven, a foyer, for frightened, tired, and sleepy children, a place to which the lonesome hard-driven man comes back as to the center of existence for rest, the supreme recreative activities, and social uplift. Only the woman, rich in homemaking instincts, customs, and, perhaps, training, can make the real home. Can we not, by readings, pictures, discussions, model apartments or houses, help to see the home as the little central power plant or cell whence radiates much of the social energy that makes the world go well?

b. To help the girl appreciate the facts and problems of the financial up-keep of the home through labor given outside.

c. To appreciate the fact that labor, devotion and management wisely given in the home, are in the highest degree productive, even though not appearing in the United States Census as "gainful occupations."

7. The spirit of the school of liberal education is largely that of high-grade play; the spirit of the vocational school must be that of serious work. Only one worker in ten thousand can afford to pick daisies as he travels the roads of work. The spirit of liberal education is that of the traveler for recreation and enlightenment; the spirit of the vocational school is that of the man who has business at a given destination, which destination he must reach at the earliest possible moment. The spirit of the school of liberal education is diffusive, catholic, rich in varied human contacts; the spirit of the vocational school is one of concentration of effort, singleness of purpose, and contacts limited to those essential in the economic process, that moving toward fulfilment. "Work while you work" is the motto of the vocational school; "play while you play," of the liberal school.

For interpretations as to what is meant by "liberalizing" education, we must go to such fields as literature, music, history, geography, plastic art, travel, the moving pictures, current reading and gardening.

USING WHAT WE HAVE ON HAND

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An important factor in the General Thrift Campaign being inaugurated throughout the country by the War Savings Division of the Treasury Department will be a keener interest on the part of women in the various phases of the clothing situation. The war-time shortage of textile fibers and materials brought a response from patriotic women in the country which resulted in the buying of a minimum amount of new clothing. Now that the government is urging that the wealth of the nation be husbanded so that war bills may be paid, the need for intelligent spending as a means to sensible saving is urgent.

Women generally should be interested in ways of judging materials as to their durability; they should know how to judge of possible adulterations through the appearance and "feel" of a piece of material, or by means of simple chemical tests; they should learn of the effect of texture and color in order to judge of the suitability of materials to the wearer, and the occasions upon which the garments made of them may be worn; they should study to become intelligent buyers of ready-to-wear clothing, and should be equipped with a sufficient knowledge of the technical processes involved in garment construction to make, if necessary, a part of their personal or family wardrobes, or at least to be able to judge intelligently of the quality of workmanship and cost of ready-to-wear or custom-made clothing. Above all, because of present economic conditions, women should be awake to the possibilities of *making over* clothing. Many women may feel a great need for conservation in their own or the family clothing; others may not meet this experience, but having leisure time and the desire to be helpful, may be glad to engage in some sort of relief work which has to do with the remodelling of clothing. There may be others who, already engaged in some such form of relief work, are eager to have new ideas brought to them.

Splendid opportunities, therefore, present themselves to teachers of home economic subjects for spreading a wholesome propaganda in the interest of conservation and thrift, through the teaching and demonstration of methods of making over clothing on hand. There is danger, it is true, of over-emphasis of this phase of garment construction, but at the present time there seems to be a place for a reasonable amount in a well-arranged course in textiles and clothing where it should be as thoroughly taught as other subject matter. The presentation of the problems must be made interesting, yet with the underlying thought of preventing waste and of being helpful to others.

All the principles of garment construction which have usually been taught upon new material can be taught upon that of partly worn garments except, of course, the economic placing of patterns upon *new* material. This need be of no loss, however, to the student because greater skill and ingenuity must be employed in laying the sections of patterns on the smaller pieces of cloth in order to "get the garment out," and yet have regard to the placing of the pattern on the correct grain of the material.

The use of clothing at hand rather than the purchase of new material for instruction in garment-making may be recommended because it not only teaches the prevention of waste, but reduces the cost of instruction to the student. Generally speaking this use of subject matter, because of the need for individual advice and help, can best be made when there are small groups of students, where teachers of larger classes are provided with assistants, in demonstration classes, in girls' and women's clubs, or in part-time classes, where some members of the class who have had practical experience in similar problems may be of assistance to the teacher.

A great deal has been written on the subject of remodelling clothing, and considerable literature, in the form of leaflets and bulletins, has been put out by the Government through the States Relation Service, Department of Agriculture, and Federal Board for Vocational Education, through state universities and agricultural colleges, and by magazines and newspapers through the departments devoted to the interests of the household. Innumerable impossible ways of utilizing old garments are therein set fourth, but much that is helpful is also to be

found. It must be remembered that careful selection must be made of that which applies directly to the situation at hand. Not all of it will be useful to everyone; some of the subject matter can be useful only as a basis for working out some individual problem.*

A few practical facts which bear directly upon the advisability of re-making clothing may not be amiss.

1. Only a minimum of expense, time, and labor should be allowed for making over clothing.

2. Garments should be carefully examined to ascertain:

a. Whether the material is strong enough to give enough additional service to warrant the necessary expenditure of time and labor. (This can be determined by holding the material between the thumbs and first fingers, and pulling first on the lengthwise, and then on the crosswise threads.)

b. Whether there is sufficient cloth to re-make the garment as desired.

c. What quantity of new material, if any, will be necessary to remodel the garment.

d. Whether it can be combined with another garment to make a good-looking costume.

e. Whether it will, when completed, have a new or a made-over look.

f. Whether it would be better to cleanse and press it, make the skirt narrower if need be, add new collars and cuffs, and wear it as it is, even if not the latest "style," knowing it is a becoming, well-cut garment.

g. Whether the better economy would be to re-cut it for someone smaller, reserving the cost, time and labor for a new garment for one's self.

3. The initial cost of good material repays the purchaser in length of service and the possibility of making over, while materials of cheaper grade do not.

4. All garments to be made over should be ripped as much as is necessary for re-cutting, bits of threads removed, thoroughly brushed, cleansed either at home or by a professional cleaner, and carefully pressed.

5. Simple designs for re-making should be chosen, remembering that only a minimum of time and labor should be spent upon the garment.

*Suggestions will be found as to "what to do" and explanations of the technique "of doing" in Bulletin 23, Federal Board for Vocational Education (Washington, D. C.), which contains a full bibliography relating to clothing conservation, processes of construction, etc.

6. Good commercial patterns can be had suitable for all types of garments. If one is skilled in the use of a dress form, much of the work can be done upon that.

The ideas generally set forth for extending the service of women's clothing are as follows: (1) Entire re-cutting, (2) combining with other material, (3) combining two garments to make one, (4) turning coat-suits into one-piece dresses, (5) renewing by means of cleansing and pressing, removing extra fulness in skirts, and the addition of new collars, cuffs, girdles, buttons, etc., (6) cutting into garments for smaller women, young girls or children.

The idea of re-making men's clothes has not been so much worked upon, except the uses to which "father's shirt" may be put, which, like the shirt, have been worn "threadbare." Men's suits or coats so badly worn or frayed at edges as to be beyond repair, may often have sufficient strong material in them to be made over for boys. Overcoats may be used in making top coats for boys or girls, and trousers may provide suits for tiny boys or plaited skirts with shoulder straps for little girls.

Cleverness and ingenuity have evolved methods of using stockings, both men's and women's, cotton and wool, and the unworn parts of knitted underwear to fashion undervests, underdrawers, petticoats, sweaters, caps, etc., for infants and children, all of which has greatly augmented the possibilities of relief work for suffering people.

Very practical demonstrations of what can be done in the utilization of what is on hand, have been made at various times by classes in the department of textiles and clothing, Teachers College, both in the regular courses and in the special war emergency work. Practice in all sorts of relief work has been provided both in the re-making of partly worn undergarments into garments for infants and children, and the use of odds and ends of cloth left from newly made garments, bits of wool, etc., for infants' bootees and comforts. The use of materials at hand has been emphasized in the instruction which has been given in the making and trimming of hats. Attractive children's hats have been made of small ends of cloth—linen, gingham, lawn, organdie, crepe; these have been decorated with cross-stitch designs, or wool-embroidery in simple stitches. Women's sport hats to match the costume have been similarly made and

trimmed, and hats of cloth or silk for street or travel. All sorts of odds and ends have been used in the making of trimmings, organdies, silks, satin, velvet, woolen yarn, and even paper in the form of flowers or fruit.

Instruction in the making of dress accessories, belts, collars, cuffs, bags, etc., has been given, for the purpose of providing women with simple methods of adding a distinctive, artistic note to their costumes, for which the purse might not allow the merchant's luxurious price. Students have been taught through the coöperation of the department of household administration how to cleanse the entire garment, or ripped up sections, they were about to re-make. This has sometimes been done in group work, sometimes individually. Instruction has been given in re-making women's dresses, coats, suits, etc., applying the principles of good design in costume. Experimentation in dyeing materials has been a feature of this work. Quite successful results were obtained with badly faded dresses. Practice in the use of both commercial patterns and the dress form has been provided; the constructive principles pertaining to the assembling of parts and finishing of garments have also been taught.

Some recent work in clothing conservation has emphasized the re-making of adult garments into children's clothing. An effort was made, in designing the clothing, not to lose sight of the child's sense of appreciation of attractive things, but to plan such as would not only be usable and wearable, but also attractive to any child. As a reward for the effort put forth, a little model who posed for the photographs of some of the suits asked the photographer if he might have the garment he liked best of the ones in which he posed. His mother begged to be allowed to buy the one he chose.

A number of the garments which were made from men's shirts and suits given to the department for the purpose of experimentation are shown in the accompanying illustrations, but many others were also made: among them, a boy's jumper suit, a boy's sailor suit and cap—each from a man's cloth suit; a boy's overcoat, cap and leggings from a man's overcoat; and several pairs of small boys' trousers and a little girl's kilted skirt with shoulder straps, from men's trousers. There was also made from a man's cutaway coat, a coat with a peplum for a very

small woman. The coat, being black, can be worn with a plaid or check skirt. A small girl's coat was cut from a young woman's suit coat. The original coat was trimmed with bands of fancy plush; this was used for the collar, cuffs, belt and buttons of the child's coat. The lining, being in good condition, was also used.

In reading the description of the garments which are shown in the illustration it will be seen that very little expense was put upon them, in some cases only the cost of the thread used in the machine stitching.

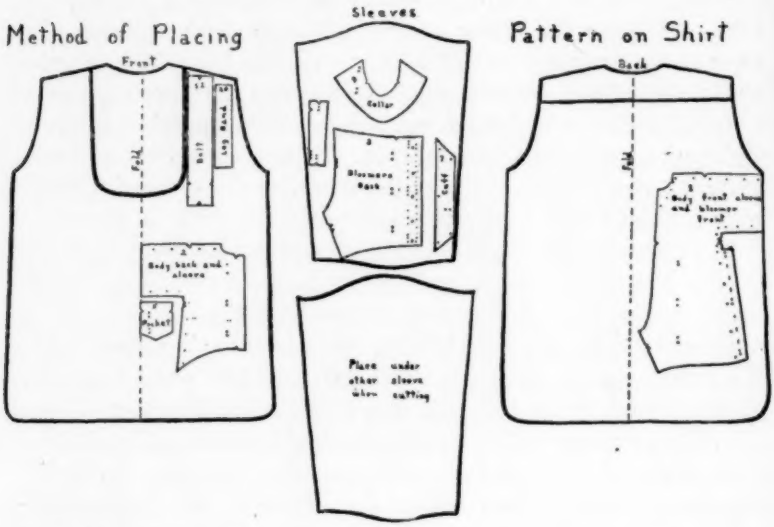

FIG. 1*a*. Method of placing pattern for cutting rompers from a man's shirt.

DESCRIPTION OF ILLUSTRATIONS

The rompers shown in Fig. 1*b* are a three-year size, made from a man's shirt, Fig. 1*a*, the material of which was strong and heavy enough to be used for this purpose. It is cut with a kimono sleeve, and seam on the shoulder, center front and center back as shown in the illustration. Fig. 1*a* shows the method of placing the pattern on the shirt in order to "get it out." The cost of the buttons and thread was the only expense.

The little dress, Fig. 2*b*, was also a three-year size and cut very nicely from a man's shirt, Fig. 2*a*, by placing the center

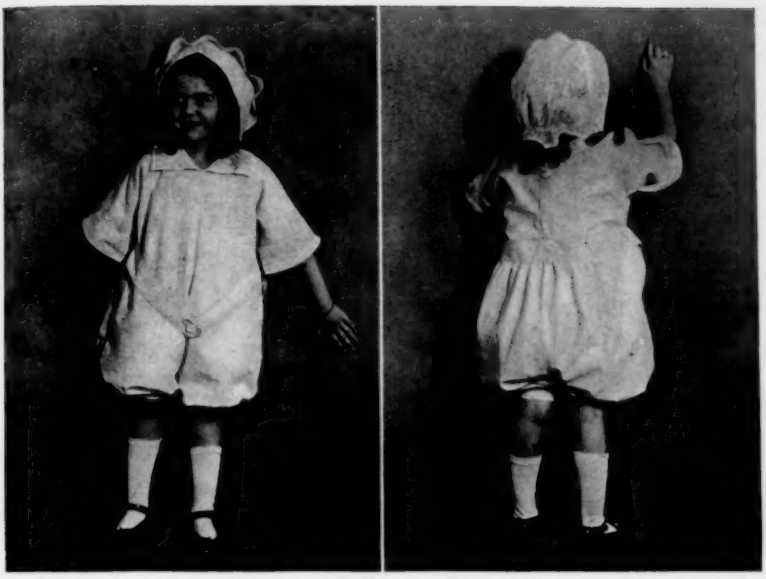

FIG. 1*b*. Rompers made from a man's shirt. Three-year size.
Front and back views.

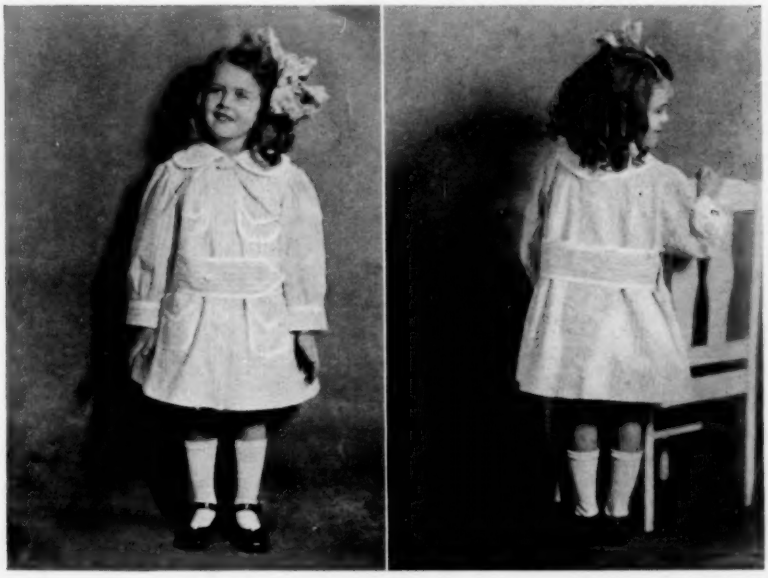

FIG. 2*b*. Little girl's dress, three-year size, made from a man's shirt.
Front and back views.

FIG. 3. Child's apron made from a man's shirt.

FIG. 4*b*. Woman's shirtwaist made from a man's heavy cotton shirt. The same can be done with silk shirts.

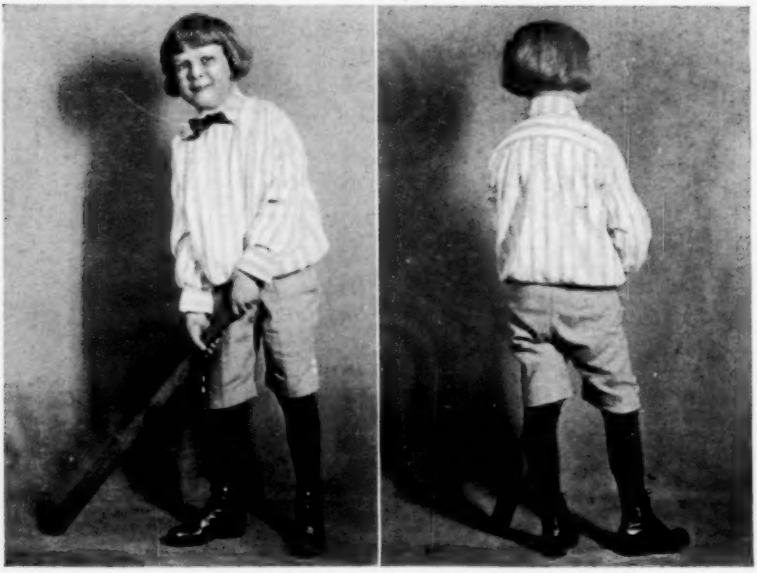

FIG. 5*b*. Boy's blouse made from a man's shirt. Front and back views.

front and back of the dress pattern on the center front and back of the shirt, the sleeves, pockets and belt on the sleeve of the shirt. The cost of findings—buttons, thread, and bias seam binding, which were used to finish the edges of the belt, pockets, collar and cuffs—was twenty-eight cents.

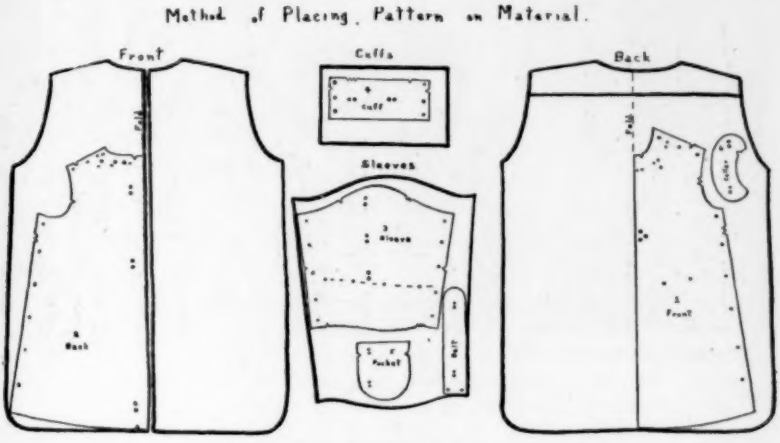

FIG. 3a. Method of placing pattern for cutting little girl's dress from a man's shirt.

In Fig. 3, a garment is shown which may be used as an apron or as a plain little dress. It is very simple in construction and was cut very easily from the good parts of a shirt. It was quickly made and the only cost was eight cents for two buttons (there being not enough on the shirt, and none the right size in the button box), and one and a half yards bias seam binding and the thread used in stitching.

The woman's shirtwaist shown in Fig. 4*b*, was cut from a man's heavy cotton shirt. The difficulty which the plaited bosom caused was overcome by bringing the shoulder line of the shirtwaist forward after the manner of a yoke, and placing the center front to the under-arm seam of the shirt, as shown in the drawing (Fig. 4*a*) which illustrates the method of placing the pattern on the shirt for cutting out. There was no expense on this shirtwaist except for the thread used, the buttons on the shirt being used for the waist.

From a good-looking black and white striped madras shirt, also having a plaited bosom, the boy's blouse shown in Figs. 5*a* and *b* was cut without difficulty. The only expense was the thread, the buttons on the shirt answering admirably for the blouse.

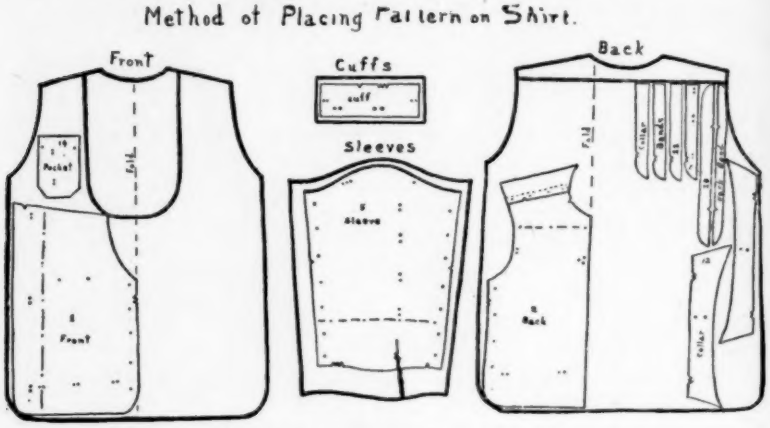

FIG. 4*a*. Method of placing the pattern on a man's shirt for cutting a woman's shirtwaist.

The skirt and straps in the little girl's dress shown in Fig. 6*b* were cut, as illustrated in Fig. 6*a*, from a pair of cloth trousers.

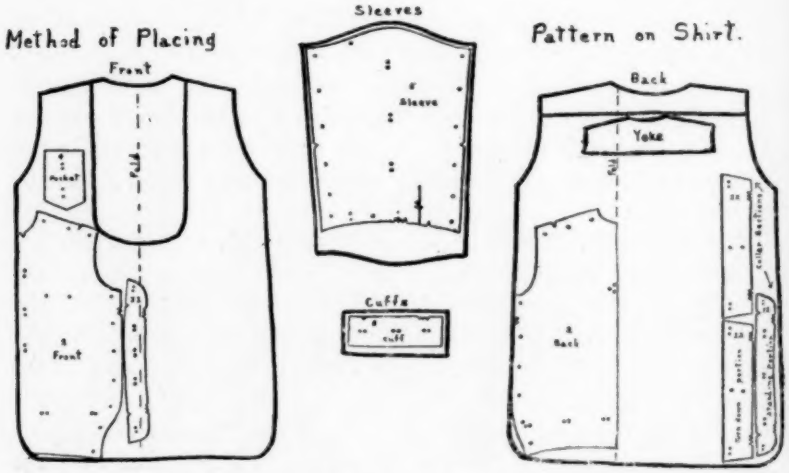

FIG. 5*a*. Method of placing pattern on a man's shirt for cutting a boy's blouse.

FIG. 6*b*. Little girl's dress made from man's trousers, the blouse from cotton cloth left from a wash dress.

FIG. 7. Boy's Oliver Twist suit—trousers from man's shirt, blouse from cotton cloth left from a woman's dress.

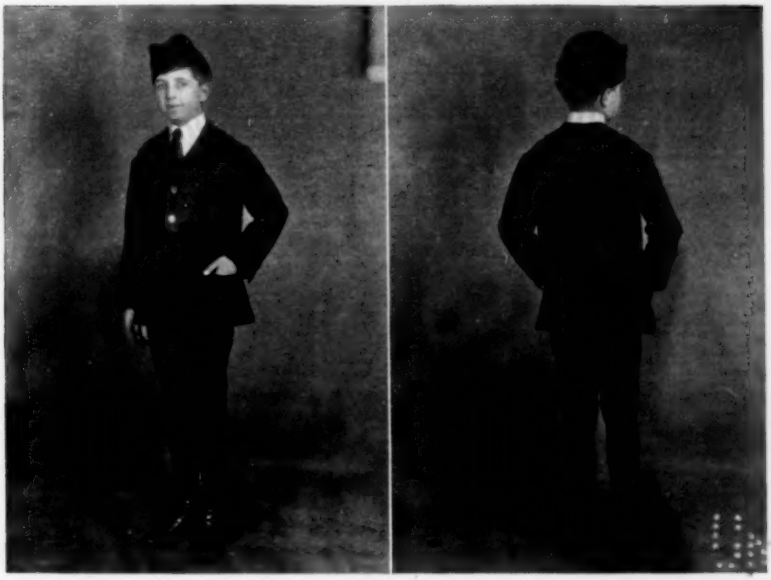

FIG. 8*b*. Front and back views of boy's suit made from a man's suit which was of good material and large. A small boy's trousers were also cut from same suit.

(Only light weight cloth is really suitable, else the skirt will be too heavy.) The blouse was made from a piece of cloth left in making a cotton wash dress. The only expense was for silk and cotton thread used in stitching. The lining for the straps, the rick-rack braid on the blouse, and the buttons were charged up to the piece-bag and button box.

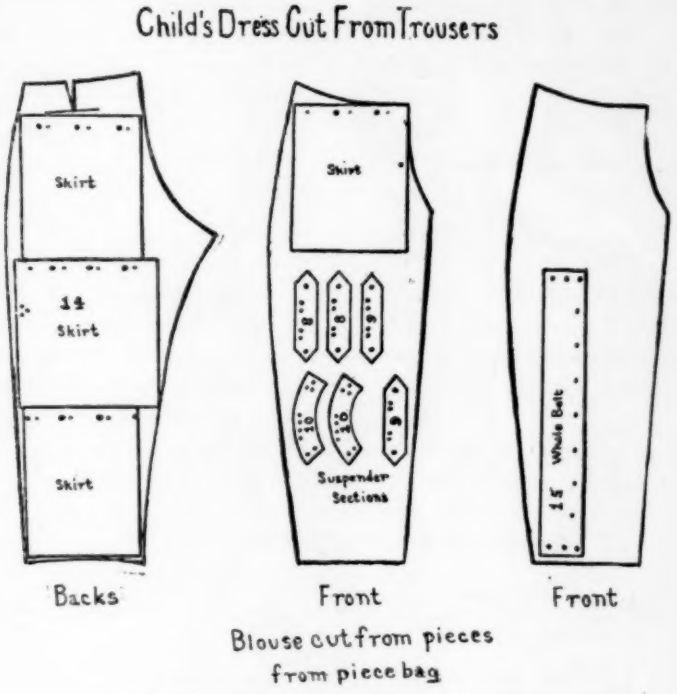

FIG. 6*a*. Method of placing pattern on a man's trousers to cut little girl's dress.

The trousers of the little Oliver Twist suit shown in Fig. 7 were cut from a man's shirt. Others were cut from trousers, one pair having been made from what was left after cutting the little girl's dress (Fig. 6*b*). The blouse in Fig. 7 was made out of a piece of white cotton cloth left from a woman's dress. The cost of this little suit was but a few cents for thread.

Great interest was manifested in the conversion of a man's suit, Fig. 8*a*, into a suit and cap for a boy, Fig. 8*b*, plus a pair of

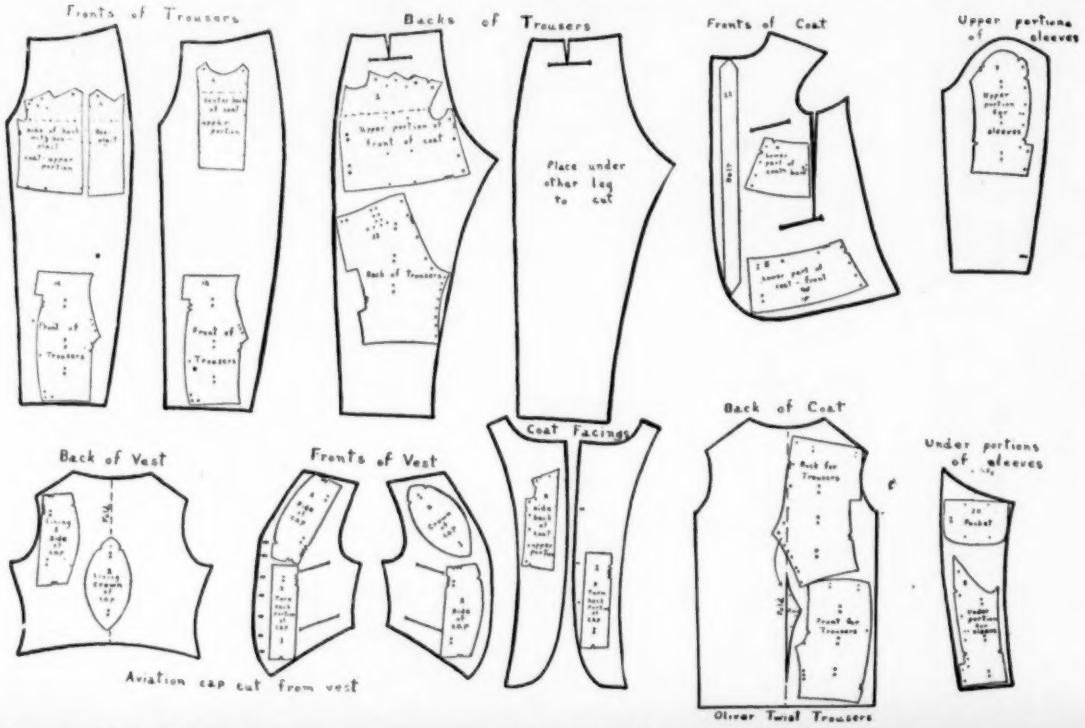

FIG. 8a. Method of placing the pattern on the parts of the man's suit for cutting boy's suit, cap and extra trousers.

trousers for a wee small boy's Oliver Twist suit. It was found that the larger boy's cap could all be cut from the vest except one piece, with the cutting of which a pocket effectually interfered. But it was discovered that this piece could be gotten from the lower part of the front facing of the coat. The fact that the man's suit was large made it possible to get from it such a large suit and the extra pair of trousers. The lining of the coat was in good condition, so it was re-cut to line the boy's coat. The back of the vest was used to line the cap. The entire cost of the suit was eighty cents, expended as follows:

Sewing silk	$ .22	Cord	.02
Thread	.03	Bias binding	.02
Sateen	.38	Tape	.03
Canvas	.10		
		Total,	.80

It is the concensus of opinion of the two groups of students completing this work, that in addition to the excellent practice afforded them in *planning* "how to do it," the experience in assembling parts of boys' and girls' clothing, and the application of principles of tailoring was invaluable.

The garments shown in the illustrations, and others as well, have been grouped into exhibits for the purpose of loaning to agricultural colleges, or schools, which may desire to use them a short time for demonstration purposes in Farmers' Institutes, etc. Information regarding these exhibitions can be had by addressing the Department of Textiles and Clothing, Teachers College.

FIG. 82. Method of placing the pattern on the parts of the man's suit for cutting boy's suit, cap and extra trousers.

THE RELATIVE VALUE OF MOTION PICTURES AS AN EDUCATIONAL AGENCY

An Experimental Study

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In the memory of those still young, colleges which concerned themselves most with the morals of their students forbade attendance at the "movies." In spite of such opposition, however, motion pictures have come into their own. They have invaded the churches and the schools; in fact, the motion picture theaters, particularly in the cities, have become the adult continuation schools and the real social centers. Certain cynics hold that academic tradition is the last stronghold against the new; yet even this stronghold is surrendering to the motion picture, for Columbia University has just introduced courses in cinematography. It is now openly admitted that the two greatest modern inventions are motion pictures and the phonograph, for the former preserves that which is good to see and the latter that which is good to hear.

No one denies that motion pictures have some moral and pedagogical value, so the problem really reduces itself to a comparison of these values with those of other agencies. The exponent of motion pictures has little evidence upon which to base his claims, for experimental data on this subject are practically non-existent. The purpose of this article is to report the methods and results of some experiments to determine the pedagogical and moral value of motion pictures. These experiments compare the efficiency of three typical methods of pre-

[1] The author wishes to acknowledge his indebtedness to Dr. Hugh Hartshorne of Union Theological Seminary, for assistance in the preliminary planning of the experiments; to Dr. W. A. McCall, of Teachers College, for general supervision of the work and the compilation of results; and to Miss Laura Chassell for her assistance in the preparation of the manuscript. The investigation was made possible through an appropriation granted by the Board of Sunday Schools of the Methodist Episcopal Church.

senting a story to pupils: (1) silent reading of a story by pupils, (2) oral telling of the story to pupils, and (3) presentation of the story to pupils by means of motion pictures.

The ultimate evaluation of these three methods of presentation will depend upon a number of measurements, including the influence of each upon vision, social behavior, and other aspects of personal experience. Only four measurements were applied during these experiments. The questions which the investigation was designed to answer were: (1) Which method gives pupils the most factual knowledge? (2) Which method stimulates the largest amount of thinking or inference? (3) Which method most improves the ability of pupils to make moral discriminations? (4) Which method is most interesting to pupils?

The experiments were conducted and the results statistically treated as described in detail in the latter part of the article. The data tabulated in Tables VI, VII, and VIII and summarized in Table IX support the following conclusions:

Under the conditions of our experiments, questions of fact, inference, or moral discrimination can be answered more adequately when the narrative material has been presented by a story-teller or as reading matter than when presented through the motion picture; of the two more successful methods of presentation, the story-telling has the advantage.

The relative merit of the different methods of presentation, stated more exactly, is as follows:

1. Superiority of presentation through reading matter to presentation through the motion picture, as concerns
   (*a*) questions of fact, 7.26 per cent
   (*b*) questions of inference, 8.375 per cent
   (*c*) questions of moral discrimination, 5.525 per cent
2. Superiority of oral presentation to presentation through the motion picture, as concerns
   (*a*) questions of fact, 12.21 per cent
   (*b*) questions of inference, 9.475 per cent
   (*c*) questions of moral discrimination, 5.35 per cent
3. Superiority of oral presentation to presentation through reading matter, as concerns
   (*a*) questions of fact, 4.95 per cent
   (*b*) questions of inference, 1.1 per cent
   (*c*) questions of moral discrimination, 0.175 per cent

When the results of the different tests are combined by averaging the figures given above, the relative merit is as follows:

Superiority of presentation through reading matter to presentation through the motion picture, 7.053 per cent; of oral presentation to presentation through the motion picture, 9.012 per cent; and of oral presentation to presentation through reading matter, 1.958 per cent.

After a part of the story selected had been presented to the pupils by each of the three methods, and the first measurements had been taken, a supplementary experiment was conducted to investigate the attitude of the subjects toward the various methods of presentation, and to discover the one which had made the largest appeal to their interest. An opportunity was given for the subjects to vote upon the method by which they desired that the remaining two-fifths of the story be presented, with the understanding that the preference thus expressed would be respected. As was to be expected, the vote favored the presentation through the motion picture; next in order came the reading, while story-telling was the least popular of all. The percentages were respectively 90.8, 5.0, and 0.4, 3.8 not voting. Thus our results would indicate that the order of effectiveness of the various methods, where appeal to interest is concerned, is exactly the opposite of that which obtains if the ability to reproduce and apply the material presented is considered.

After an interval varying from three to five weeks the same four measurements, excepting the interest measurement, were repeated to determine the permanent value of the three methods of presentation. The data tabulated in Tables X, XI, and XII and summarized in Table XIII, support the following conclusions:

Under the conditions of our experiments, questions of fact, inference, or moral discrimination can be answered more adequately upon delayed recall when the narrative material has been presented by a story-teller or as reading matter than when presented through the motion picture; of the two more successful methods of presentation, story-telling is the more advantageous.

The relative merit of the different methods of presentation, stated numerically, is as follows:

1. Superiority of presentation through reading matter to presentation through the motion picture, as concerns
   (*a*) questions of fact, 0.95 per cent
   (*b*) questions of inference, 2.35 per cent
   (*c*) questions of moral discrimination,—0.55 per cent
2. Superiority of oral presentation to presentation through the motion picture, as concerns
   (*a*) questions of fact, 4.25 per cent
   (*b*) questions of inference, 5.85 per cent
   (*c*) questions of moral discrimniation, 3.625 per cent
3. Superiority of oral presentation to presentation through reading matter, as concerns
   (*a*) questions of fact, 3.275 per cent
   (*b*) questions of inference, 3.50 per cent
   (*c*) questions of moral discrimination, 4.175 per cent

When the results of the different tests of delayed recall are combined by averaging the figures given above, the relative merit is as follows:

Superiority of presentation through reading matter to presentation through the motion picture, 0.917 per cent; of oral presentation to presentation through the motion picture, 4.575 per cent; and of oral presentation to presentation through reading matter, 3.65 per cent.

The differences between the various methods of presentation are less in the tests for delayed recall than in the original ones. The same relative position, however, is retained by each method. The decreased differences may be explained by the fact that since the material was all taken from one story, there may have been transfer of ideas from one section of the story to another, and this would particularly affect the tests of delayed recall. Although the questions were worded very carefully to prevent such possible transfer, still the greater familiarity with the characters would be sufficient to lessen the actual differences between the various methods, were there no other sources of transfer. The differences are still marked, however; and if this factor has operated, our conclusions, as a result, are conservative.

Various questions as to the degree of confidence which should be placed in the results readily suggest themselves. A number of these will be discussed briefly.

First, was the reliability of the conclusions affected by departures from the original plan of the experiment? Such could

scarcely be the case since, with two slight modifications, the experiment was conducted as originally planned, and these modifications were not such as to affect the results presented.

Second, were the subjects a representative selection? They were boys from two New York schools. Since these schools were situated on the lower east and west sides, respectively, the subjects were chiefly Hebrews and Italians. The strictly American stock was not well represented. It is possible that results obtained from experiments upon members of different nationalities might vary somewhat from those obtained in our experiments; but it is not highly probable that they would vary to such an extent as to change our conclusions, inasmuch as the results obtained from both nationalities are essentially the same although the two groups differ so widely in their characteristics. Further, the variation in age (from 11 to 17 years) is sufficient to justify the application of our conclusions to older children and possibly also to adults.

Third, were the test questions used fair to all the methods of presentation? In answer it may be said that since the questions were selected so that the elements of the story involved were common to the three types of narrative material, none of the methods was favored in this regard. The objection may be raised that the motion picture does not supply the words of the story as do story-telling and silent reading. This statement is in part true; still, through the captions of the motion picture most of the essential words are vividly portrayed. Although the rest of the words are not supplied, this lack is inherent in the method of presentation, and a distinctive difference of this sort is just the type of factor the tests were designed to measure.

Fourth, have all the factors involved been investigated? Considerations of time and convenience have necessarily limited the research. For example, it would have been desirable to investigate the effect of the various methods of presentation on the conduct of the children. Some steps were taken to devise tests to subject this factor to quantitative investigation, but the undertaking was abandoned because of the time which would have been required for such a study. Furthermore, the investigation should be supplemented by experiments which would eliminate any constant error due to the fact that but one mo-

tion picture and one story-teller were introduced. The investigation, therefore, can make no claim to completeness, nor does it make possible a final estimate of the relative value of motion pictures as an educational agency. It may serve, however, to point out the advantage of methods already in vogue and serve as a warning against the assumption that motion pictures are unqualifiedly our most valuable educational agency.

The remainder of this article is devoted to a description of the method of procedure followed in conducting the main experiments and the treatment of results, and presents the data upon which the conclusions cited earlier are based.

"The Hoosier Schoolmaster," a five reel feature film, was selected as a suitable motion picture for the experiments, only the first three parts being used as a basis for measurement. Equivalent material in printed and story form was provided in the following manner. A student who had majored in English during her college course viewed the motion picture. She then wrote up the story as carefully as possible, taking care to include all essential facts as a basis for prospective test questions. She then polished the story by substituting as far as possible the words of the author, that the material thus prepared might be equivalent in artistic and dramatic effect to the motion picture. This material was multigraphed and used for silent reading. It served also as the basis for the story-telling, a practically verbatim reproduction being given by the story-teller.[2]

The subjects for the experiments were three hundred and fifteen boys from two New York public schools.[3] At one school six 7A grades participated; at the other, four 8A and two 9A grades. The 7A grades included boys from 11 to 15 years of age, with the median age at 13; the 8A and 9A grades, boys from 12 to 16 years of age, with the median age at 14. These twelve classes were divided into four experimental units, three classes in each group, as indicated in the table.

[2] The story-teller was a grade school principal above the average in native ability, though not a trained story-teller.

[3] The author wishes to acknowledge gratefully the cooperation of Principals Marks and Wade of Public Schools 64 and 95, respectively, with whose permission and assistance the experiments were conducted.

TABLE I

ARRANGEMENT OF CLASSES AND NUMBER OF SUBJECTS

Experimental Unit I	School I	7A1[4] (22)[5]	7A2 (30)	7A3 (17)
" " II	" I	7A4 (24)	7A5 (21)	7A6 (21)
" " III	" II	8A1 (35)	8A2 (23)	8A3 (32)
" " IV	" II	8A4 (31)	9A1 (24)	9A2 (35)

The rotation experimental method was used in the presentation of the material. The procedure in Experiment I, which is typical of that followed in the other experiments, is indicated below.

TABLE II

EXPERIMENTAL UNIT I

ORDER OF PRESENTATION OF MATERIAL

Week	Motion Picture	Silent Reading	Story-Telling
First	7A3	7A2	7A1
Second	7A2	7A1	7A3
Third	7A1	7A3	7A2

The first week three of the 7A sections were presented the three forms of material: 7A3 saw the first reel of the motion picture; 7A2 read from multigraphed copy the equivalent part of the story; and 7A1 heard the same part of the story as told by the story-teller. The second week a similar procedure was followed, but a different method of presentation for each section was employed. Thus, for example, 7A3 heard but did not see the second part of the story. The third week a shift was made again, so that at the end of that time each grade had had an opportunity to see, read, and hear one part of the story.

THE TEST QUESTIONS

As has been indirectly indicated, the results of the various methods of presentation were measured by means of a series of test questions. The principles governing the making out of the test questions were as follows:

[4] The numbers following 7A, 8A, and 9A refer to the sections.

[5] The figures in parentheses indicate the number of subjects in each group who completed the experiment.

1. Select the most important ideas and facts for interrogation.
2. Ask enough questions to cover all the important ideas and facts. (Some less important ones were also included.)
3. Make the questions independent of each other.
4. Word all questions in such a way as not to answer others.
5. For single questions select unit facts and ideas.
6. Use language that all pupils understand easily.

These test questions were of three different kinds: questions of fact, questions of inference, and questions of moral discrimination.

The fact questions consisted of forty interrogations concerning events and actual facts presented by the three methods previously described—through the motion picture, the reading, and the story-telling. Below is a sample of the questions and also of the preliminary directions which were placed above the questions.

Directions. When the answer to a question is "Yes," draw a line under the word "Yes." When the answer to a question is "No," draw a line under the word "No." Be sure to answer every question; guess at the answers to the questions that you do not know. Do it like this:

Did the story take place in the city?	Yes	No
Did the story take place in the country?[6]	Yes	No
Was Mrs. Means' house neat and in order?	Yes	No
Did Bud have a sister?	Yes	No
Was Mr. Means whittling?	Yes	No

Answers to these questions could in each case be secured from the material which the subjects had actually either seen, read, or heard. Thus, to take the first sample given, "Was Mrs. Means' house neat and in order?" a very untidy home is displayed in the picture, and a statement to the effect that Mrs. Means was a very untidy housekeeper is made in the story.

The questions of inference consisted of twenty interrogations, answers to which were to be inferred from the facts presented. Although the illustrative questions printed below appear to be of the same nature as the fact questions, such is not the case, for the answers to these could not be directly obtained from the material presented.

[6] Although the illustrative questions given the subjects are but two forms of the same question, no duplication occurred in the text of the test itself.

Did Mrs. Means think the schoolmaster would make a pretty good husband for Mirandy? Yes No
Did Mrs. Means offer to get Ralph's coat mended because she was fond of him? Yes No
Did Hanna do a good piece of work on the coat in order to spite Mrs. Means? Yes No

The moral discrimination questions consisted of twenty interrogations which, as the name indicates, required for answer the exercise of moral judgment. Illustrative questions appear below.

Should Jack have told what he knew about the store robbery? Yes No
Was it right for Bud to speak up for Hanna against his mother? Yes No
Was it wrong for Ralph to ask Mrs. Means to mend his coat? Yes No
Would the Captain with a wooden leg make a good friend? Yes No

Three sets of test questions, one of each type, were prepared for each of the three parts of the story, thus making a total of nine.

Below are indicated the tests given to each section in Experiment I, as illustrative of the procedure followed in all the experiments. For convenience, the terms Test A, Test B, and Test C are used to refer, respectively, to questions of fact, questions of inference, and questions of moral discrimination. The number preceding the type of test, as, for example in Test 1A, 1B, 1C, indicates the part of the story from which the questions were taken.

TABLE III

EXPERIMENTAL UNIT I

ARRANGEMENT OF TESTS

Week	Motion Picture	Silent Reading	Story-Telling
First	7A3 Test 1A, 1B, 1C	7A2 Test 1A, 1B, 1C	7A1 Test 1A, 1B, 1C
Second	7A2 Test 2A, 2B, 2C	7A1 Test 2A, 2B, 2C	7A3 Test 2A, 2B, 2C
Third	7A1 Test 3A, 3B, 3C	7A3 Test 3A, 3B, 3C	7A2 Test 3A, 3B, 3C

After three sections, for example, 7A1, 7A2, and 7A3 had simultaneously been presented with the seeing, reading, and hearing material in different rooms, they were called together as soon as possible (the interval usually being about five minutes), and given the test questions in one group. The entire set of examinations was administered by one examiner.

The answers were scored as is usual in the case of tests of this nature; that is, the score given was the number of correct answers less the number of incorrect ones. Thus in the forty-question test, if there were three errors, the score would be 37 minus 3, or 34.

After the papers were scored, in the case of each test the average score for the individual sections was computed for each of the three methods of presentation. These averages were then tabulated as illustrated below in Table IV, which illustrates the procedure in the case of Test A, Experimental Unit I.

TABLE IV

EXPERIMENTAL UNIT I

TEST A. AVERAGE SCORES

Week	Motion Picture		Silent Reading		Story-Telling	
First	7A3	21.0[7]	7A2	25.4	7A1	24.2
Second	7A2	27.1	7A1	25.7	7A3	32.4
Third	7A1	25.5	7A3	33.4	7A2	28.4
Average		24.53		28.17		28.33

The score 24.53 indicates the average score made by the "seeing" sections in Experimental Unit I, 28.17, that made by the "reading" sections; and 28.33, that made by the "hearing" sections.

In Table V is given for Test A the average scores made by all four Experimental Units.

TABLE V

FOUR EXPERIMENTAL UNITS

TEST A. AVERAGE SCORES

Experimental Units	Motion Picture	Silent Reading	Story-Telling
I	24.53[7]	28.17	28.33
II	24.93	25.97	30.13
III	25.43	28.77	30.90
IV	27.03	30.63	32.10

Since the experimental units were not exactly comparable because of the age differences mentioned previously, the average scores were not averaged to obtain a final score for each method of presentation, but the results for the different units were computed separately; i.e., the difference between the average scores

[7] To convert these scores into per cents of the maximum possible score, multiply by 2½.

for each method of presentation was obtained in the case of each experimental unit. The results are tabulated in Table VI.

TABLE VI

FOUR EXPERIMENTAL UNITS

TEST A. DIFFERENCES IN AVERAGE SCORES

Experimental Units	Motion Picture Silent Reading	Motion Picture Story-Telling	Silent Reading Story-Telling
I	−3.64 [7]	−3.80	− .16
II	−1.04	−5.20	−4.16
III	−3.34	−5.47	−2.13
IV	−3.60	−5.07	−1.47
Average Score	−2.905	−4.885	−1.98
Average Per cent	−7.26	−12.21	−4.95
Standard Deviation of Average Score	.54	.32	.72

The manner of obtaining these differences is illustrated in the case of the scores made by Experimental Unit I, Test A. The average score 28.17 was subtracted from 24.53; 28.33 from 24.53; and 28.33 from 28.17; the differences,−3.64,−3.80, and −0.16, respectively, resulting.

The procedure in the case of Tests B and C was similar to that described for Test A. Table VII shows for Test B the differences in average score for the three methods of presentation.

TABLE VII

FOUR EXPERIMENTAL UNITS

TEST B. DIFFERENCES IN AVERAGE SCORES

Experimental Units	Motion Picture Silent Reading	Motion Picture Story-Telling	Silent Reading Story-Telling
I	−1.83 [8]	− .89	+ .94
II	−1.47	− .96	+ .51
III	−1.74	−2.90	−1.16
IV	−1.66	−2.83	−1.17
Average Score	−1.675	−1.895	− .22
Average Per cent	−8.375	−9.475	−1.10
Standard Deviation of Average Score	.07	.49	.48

[7] To convert these scores into per cents of the maximum possible score, multiply by 2½.

[8] To convert these scores into per cents of the maximum possible score, multiply by 5.

Similarly, in Table VIII, are presented the differences in average scores for the three methods of presentation in the case of Test C.

TABLE VIII

FOUR EXPERIMENTAL UNITS

TEST C. DIFFERENCES IN AVERAGE SCORES

Experimental Units	Motion Picture Silent Reading	Motion Picture Story-Telling	Silent Reading Story-Telling
I	−1.13 [8]	−1.60	−.47
II	−1.81	−2.39	−.58
III	− .74	+ .18	+.92
IV	− .74	− .47	+.27
Average Score	−1.105	−1.07	+.035
Average Per cent	−5.525	−5.35	+.175
Standard Deviation of Average Score	.22	.50	.30

Table IX presents, for the three tests, the average per cents already tabulated in Tables VI, VII, and VIII. It also gives the average per cents for all the tests combined.

TABLE IX

TESTS A, B, AND C. DIFFERENCES IN AVERAGE PER CENTS

Test	Motion Picture Silent Reading	Motion Picture Story-Telling	Silent Reading Story-Telling
A	−7.26 [10]	−12.21	−4.95 (?)
B	−8.375	−9.475	−1.10 (?)
C	−5.525	−5.35 (?) [10]	+ .175 (?)
Average	−7.053	−9.012	−1.958

After the first tests had been completed and the interest vote taken, the questions were again given to the same children. The interval which had elapsed since the first tests varied from three to five weeks, averaging about three and one-half weeks. The results are given below.

[8] To convert these scores into per cents of the maximum possible score, multiply by 5.

[9] The per cents are computed on the basis of the maximum possible score.

[10] A (?) following a figure indicates that the standard deviation of the average is too high for the results to be considered fully reliable.

TABLE X

FOUR EXPERIMENTAL UNITS

TEST A. (DELAYED RECALL) DIFFERENCES IN AVERAGE SCORES

Experimental Units	Motion Picture Silent Reading	Motion Picture Story-Telling	Silent Reading Story-Telling
I	+1.00[11]	+ .30	− .70
II	−2.65	−2.70	− .05
III	− .50	−2.40	−1.90
IV	+ .63	−2.00	−2.60
Average Score	− .38	−1.70	−1.31
Average Per cent	− .95	−4.25	−3.275
Standard Deviation of Average Score	.715	.589	.498

TABLE XI

TWO EXPERIMENTAL UNITS

TEST B. (DELAYED RECALL) DIFFERENCES IN AVERAGE SCORES

Experimental Units[12]	Motion Picture Silent Reading	Motion Picture Story-Telling	Silent Reading Story-Telling
I	+ .41[13]	− .62	−1.03
II	−1.35	−1.72	− .37
Average Score	− .47	−1.17	− .70
Average Per cent	−2.35	−5.85	−3.50
Standard Deviation of Average Score	.622	.388	.233

TABLE XII

TWO EXPERIMENTAL UNITS

TEST C. (DELAYED RECALL) DIFFERENCES IN AVERAGE SCORES

Experimental Units[12]	Motion Picture Silent Reading	Motion Picture Story-Telling	Silent Reading Story-Telling
I	+ .63[13]	− .77	−1.40
II	− .41	− .68	− .27
Average Score	+ .11	− .725	− .835
Average Per cent	+ .55	−3.625	−4.175
Standard Deviation of Average Score	.215	.018	.234

[11] To convert these scores into per cents of the maximum possible score, multiply by 2½.

[12] The results for the other two experimental units are omitted because of an irregularity in the interval between the tests for immediate and those for delayed recall. These results are in harmony, however, with those presented.

[13] To convert these scores into per cents of the maximum possible score, multiply by 5.

TABLE XIII

TESTS A, B, AND C. (DELAYED RECALL)

DIFFERENCES IN AVERAGE PER CENTS

Test	Motion Picture Silent Reading	Motion Picture Story-Telling	Silent Reading Story-Telling
A	− .95 (?)[14]	−4.25	−3.275
B	−2.35 (?)	−5.85	−3.50
C	+ .55 (?)	−3.625	−4.175
Average	− .917	−4.575	−3.65

[14] A (?) following a figure indicates that the standard deviation of the average is too high for the result to be considered fully reliable.

COLLEGE NEWS AND DEPARTMENTAL NOTES

TEACHERS COLLEGE HAS LARGEST REGISTRATION IN ITS HISTORY

The enrollment in Teachers College for the first semester numbers 2,600 students, which is the largest registration in the history of the institution. This is a gain of 733 students over the enrollment of last year and 548 students over that of 1917–1918. The largest previous enrollment was that of the year 1916–17 but this year's figures exceed those by 510 students.

The registration includes 1,423 students in the School of Education and 1,177 in the School of Practical Arts. There are 836 candidates for the degrees of Master of Arts and Doctor of Philosophy. In the School of Practical Arts there are 165 freshmen, 133 sophomores, 296 juniors, and 274 seniors.

This fall's registration follows a similar record registration for the Summer Session of 1919, the summer attendance having been 50 per cent greater than that of the summer of 1918. Both this fall and during the summer there has been the great problem of adequate space to provide amply for this large increase in students. The most immediate pressing needs include additional library facilities and more classrooms.

FRANKLIN W. JOHNSON JOINS STAFF OF TEACHERS COLLEGE

Franklin W. Johnson, for the past twelve years principal of the University of Chicago High School, has been appointed associate professor of education in Teachers College. He entered upon his new duties this fall and will offer courses in the department of secondary education, also acting as educational adviser for the Horace Mann School for Boys.

Professor Johnson was born in Jay, Maine, in 1870. He was educated at Colby College, receiving the A.B. degree in 1891 and the A.M. degree in 1894. The degree of L.H.D. was conferred upon him by Colby in 1916. He has also been a graduate student in education at the University of Chicago and at Teachers College.

Professor Johnson has had an extensive experience in educational work. He was principal of the high school, Calais, Maine, 1891–1894; principal of Coburn Classical Institute, Waterville, Maine, 1894–1905; principal of Morgan Park Academy, Illinois, 1905–1907; principal of the University of Chicago High School, 1907–1919. During the past six years he has also been a member of the department of education of the University of Chicago, giving courses in high school methods and administration. During the Summer Session of 1917 he was a member of the staff of Teachers College. During the War he served as a major in the Sanitary Corps of the United States Army, being assigned for duty as chief of the educational service at U. S. A. General Hospital No. 3, Colonia, New Jersey, for seven months, and later for three months in charge of personnel, Division of Reconstruction, Office of the Surgeon General, Washington, D. C.

Professor Johnson is author of *Problems of Boyhood* and *Ethics for Boys of High School Age.* He is a contributor to the leading educational periodicals.

During Professor Johnson's administration of the University of Chicago High School he was responsible for the social organization of the school, in which provision was made in a comprehensive manner for the broad social life of pupils with the cooperation of parents. He also provided a careful testing of the efficiency of teaching and administration and a close correlation between elementary and high school and university, resulting in the elimination of one year for all and two years for many pupils.

EDUCATIONAL ADMINISTRATION

The personnel of the department of educational administration for the college year 1919–1920 will be comprised of the following: Dr. George D. Strayer, Dr. N. L. Engelhardt, Dr. M. R.

Trabue, Dr. E. S. Evenden, Mr. F. W. Hart, and Mr. M. G. Neale.

Dr. Strayer presided in his capacity as president at the summer session of the National Education Association held at Milwaukee. The attendance of the Association was the largest in its history. During Dr. Strayer's presidency the Association had its greatest growth in membership.

Professors Strayer and Engelhardt, assisted by Mr. James O. Betelle, A.I.A., lecturer on school architecture in Teachers College, have been engaged in writing a school building code for the state of Delaware. This code will be utilized by the State Board of Education, architects, and school executives of Delaware in the erection of new buildings which are to be planned for that state.

The department of educational administration recently completed the survey of the public school buildings of the state of Delaware. The survey was conducted under the auspices of the Service Citizens of Delaware, and was made during the period from June to September of this year. Through the generous gift of Mr. Pierre S. DuPont, president of the State Board of Education of Delaware, a two million dollar fund has become available to communities for the purchase of sites and erection of school buildings, providing the communities pay half the cost of such outlays. The Survey Committee outlined a program for the erection of new buildings made possible under this fund, and organized a plan of consolidation involving all the schools of the state (exclusive of Wilmington).

During the course of the survey, all the buildings of the state were inspected and scored on either the Strayer City School Building Score Card or the Strayer-Engelhardt Score Card for One to Four Teacher Schools. The members of the department of educational administration participating in this survey were Dr. G. D. Strayer, Dr. N. L. Engelhardt, Dr. M. R. Trabue, and Mr. F. W. Hart. Copies of the survey will be available after a reasonable period for printing at the office of Service Citizens, Wilmington, Delaware.

A study of "Teachers' Salaries and Salary Schedules in the United States for 1918–1919" has just been completed by Dr. Evenden, of the department of educational administration, as a re-

port of the Committee on the Emergency in Education of the National Education Association The study also includes tabulations of salaries paid, increases granted, minimal salaries, maximal salaries, cost of living, experience demanded and training required for teachers in elementary, intermediate, and high schools in cities of various sizes and in different sections of the country. An analysis of existing salary schedules is made and a schedule proposed with recommendations for minimal and maximal salaries, amounts of increase, and suggestions for administering it in a way to secure the most efficient work by teachers and also prove a constant incentive to growth. The report, a document of about 175 pages, will be sent to all "$5.00 members" of the National Education Association, and can be secured by others for a reasonable charge from Secretary J. W. Crabtree, 1400 Massachusetts Avenue, Washington, D.C. The report will be of immediate interest to teachers, superintendents, and members of boards of education who are interested in the efficiency of American education and in adequate salaries for teachers as one essential element in securing that efficiency.

Mr. M. G. Neale has been appointed associate in educational administration for the year 1919–1920. Mr. Neale is a graduate of the University of Missouri, 1911, and was a student in Teachers College in 1914 and 1916–1917. He entered the army service early in the war and went to France with the Rainbow Division in October, 1917. He served with combat troops throughout the war and was engaged in the Vosges defensive sector, St. Mihiel offensive, and the Meuse-Argonne offensive. He retired from army service in June, 1919.

EDUCATIONAL PSYCHOLOGY

The Intelligence Examination devised by Dr. Thorndike for the measurement of high school graduates, especially with reference to their admission to colleges and professional schools, was widely used this fall. About 250 candidates sought entrance to Columbia College by this alternative plan. Many of them were gifted young men who could not have had the advantage of a college education at Columbia under preceding regulations.

During the summer Dr. T. L. Kelley directed a statistical force in a study of intelligence tests for elementary schools which is being made by the Board of Psychologists under the direction of the National Research Council with the aid of funds contributed by the Rockefeller Foundation. Through the courtesy of Teachers College the use of a room and of the laboratory equipment of the department of educational tests and statistics was made available to the National Research Council.

The registration in graduate courses in educational psychology is the largest in the history of Teachers College. There has been especially rapid growth in the courses in the psychology of exceptional children given by Dr. L. S. Hollingworth, and in the courses on experimentation and measurement in the elementary school, by Dr. McCall.

Professor Edward L. Thorndike has been appointed to membership in the Division of Anthropology and Psychology of the National Research Council. At the request of the President, the National Research Council will be perpetuated by the National Academy of Sciences. Dr. Thorndike served on the National Research Council during the war.

The honorary degree of Doctor of Science was conferred upon Professor Thorndike by Wesleyan University at its commencement in June.

FINE ARTS

Professor Dow spent his sabbatical half-year on the Pacific coast. He visited colleges and normal schools and found Teachers College alumni strong and successful. He was entertained by the Teachers College alumni of Los Angeles and spoke to them of the College activities.

Professor Dow painted in the Grand Canyon of Arizona, in the Colorado desert, and in British Columbia and Alberta.

At every stopping place, even in the Canadian Rockies, he was greeted by graduates of Teachers College. Among them was one en route to China and another to India, to teach fine arts.

The Metropolitan Museum of Art has engaged Professor Cornell to direct and conduct a series of forty talks on design and color for salespeople, buyers, and designers in the shops. On February 8, 1920, Professor Cornell will give a lecture entitled

1. Superiority of presentation through reading matter to presentation through the motion picture, as concerns
   (*a*) questions of fact, 0.95 per cent
   (*b*) questions of inference, 2.35 per cent
   (*c*) questions of moral discrimination,—0.55 per cent
2. Superiority of oral presentation to presentation through the motion picture, as concerns
   (*a*) questions of fact, 4.25 per cent
   (*b*) questions of inference, 5.85 per cent
   (*c*) questions of moral discrimniation, 3.625 per cent
3. Superiority of oral presentation to presentation through reading matter, as concerns
   (*a*) questions of fact, 3.275 per cent
   (*b*) questions of inference, 3.50 per cent
   (*c*) questions of moral discrimination, 4.175 per cent

When the results of the different tests of delayed recall are combined by averaging the figures given above, the relative merit is as follows:

Superiority of presentation through reading matter to presentation through the motion picture, 0.917 per cent; of oral presentation to presentation through the motion picture, 4.575 per cent; and of oral presentation to presentation through reading matter, 3.65 per cent.

The differences between the various methods of presentation are less in the tests for delayed recall than in the original ones. The same relative position, however, is retained by each method. The decreased differences may be explained by the fact that since the material was all taken from one story, there may have been transfer of ideas from one section of the story to another, and this would particularly affect the tests of delayed recall. Although the questions were worded very carefully to prevent such possible transfer, still the greater familiarity with the characters would be sufficient to lessen the actual differences between the various methods, were there no other sources of transfer. The differences are still marked, however; and if this factor has operated, our conclusions, as a result, are conservative.

Various questions as to the degree of confidence which should be placed in the results readily suggest themselves. A number of these will be discussed briefly.

First, was the reliability of the conclusions affected by departures from the original plan of the experiment? Such could

scarcely be the case since, with two slight modifications, the experiment was conducted as originally planned, and these modifications were not such as to affect the results presented.

Second, were the subjects a representative selection? They were boys from two New York schools. Since these schools were situated on the lower east and west sides, respectively, the subjects were chiefly Hebrews and Italians. The strictly American stock was not well represented. It is possible that results obtained from experiments upon members of different nationalities might vary somewhat from those obtained in our experiments; but it is not highly probable that they would vary to such an extent as to change our conclusions, inasmuch as the results obtained from both nationalities are essentially the same although the two groups differ so widely in their characteristics. Further, the variation in age (from 11 to 17 years) is sufficient to justify the application of our conclusions to older children and possibly also to adults.

Third, were the test questions used fair to all the methods of presentation? In answer it may be said that since the questions were selected so that the elements of the story involved were common to the three types of narrative material, none of the methods was favored in this regard. The objection may be raised that the motion picture does not supply the words of the story as do story-telling and silent reading. This statement is in part true; still, through the captions of the motion picture most of the essential words are vividly portrayed. Although the rest of the words are not supplied, this lack is inherent in the method of presentation, and a distinctive difference of this sort is just the type of factor the tests were designed to measure.

Fourth, have all the factors involved been investigated? Considerations of time and convenience have necessarily limited the research. For example, it would have been desirable to investigate the effect of the various methods of presentation on the conduct of the children. Some steps were taken to devise tests to subject this factor to quantitative investigation, but the undertaking was abandoned because of the time which would have been required for such a study. Furthermore, the investigation should be supplemented by experiments which would eliminate any constant error due to the fact that but one mo-

tion picture and one story-teller were introduced. The investigation, therefore, can make no claim to completeness, nor does it make possible a final estimate of the relative value of motion pictures as an educational agency. It may serve, however, to point out the advantage of methods already in vogue and serve as a warning against the assumption that motion pictures are unqualifiedly our most valuable educational agency.

The remainder of this article is devoted to a description of the method of procedure followed in conducting the main experiments and the treatment of results, and presents the data upon which the conclusions cited earlier are based.

"The Hoosier Schoolmaster," a five reel feature film, was selected as a suitable motion picture for the experiments, only the first three parts being used as a basis for measurement. Equivalent material in printed and story form was provided in the following manner. A student who had majored in English during her college course viewed the motion picture. She then wrote up the story as carefully as possible, taking care to include all essential facts as a basis for prospective test questions. She then polished the story by substituting as far as possible the words of the author, that the material thus prepared might be equivalent in artistic and dramatic effect to the motion picture. This material was multigraphed and used for silent reading. It served also as the basis for the story-telling, a practically verbatim reproduction being given by the story-teller.[2]

The subjects for the experiments were three hundred and fifteen boys from two New York public schools.[3] At one school six 7A grades participated; at the other, four 8A and two 9A grades. The 7A grades included boys from 11 to 15 years of age, with the median age at 13; the 8A and 9A grades, boys from 12 to 16 years of age, with the median age at 14. These twelve classes were divided into four experimental units, three classes in each group, as indicated in the table.

[2] The story-teller was a grade school principal above the average in native ability, though not a trained story-teller.

[3] The author wishes to acknowledge gratefully the cooperation of Principals Marks and Wade of Public Schools 64 and 95, respectively, with whose permission and assistance the experiments were conducted.

TABLE I

ARRANGEMENT OF CLASSES AND NUMBER OF SUBJECTS

Experimental Unit I	School I	7A1[4]	7A2	7A3
		(22)[5]	(30)	(17)
" " II	" I	7A4	7A5	7A6
		(24)	(21)	(21)
" " III	" II	8A1	8A2	8A3
		(35)	(23)	(32)
" " IV	" II	8A4	9A1	9A2
		(31)	(24)	(35)

The rotation experimental method was used in the presentation of the material. The procedure in Experiment I, which is typical of that followed in the other experiments, is indicated below.

TABLE II

EXPERIMENTAL UNIT I

ORDER OF PRESENTATION OF MATERIAL

Week	Motion Picture	Silent Reading	Story-Telling
First	7A3	7A2	7A1
Second	7A2	7A1	7A3
Third	7A1	7A3	7A2

The first week three of the 7A sections were presented the three forms of material: 7A3 saw the first reel of the motion picture; 7A2 read from multigraphed copy the equivalent part of the story; and 7A1 heard the same part of the story as told by the story-teller. The second week a similar procedure was followed, but a different method of presentation for each section was employed. Thus, for example, 7A3 heard but did not see the second part of the story. The third week a shift was made again, so that at the end of that time each grade had had an opportunity to see, read, and hear one part of the story.

THE TEST QUESTIONS

As has been indirectly indicated, the results of the various methods of presentation were measured by means of a series of test questions. The principles governing the making out of the test questions were as follows:

[4] The numbers following 7A, 8A, and 9A refer to the sections.

[5] The figures in parentheses indicate the number of subjects in each group who completed the experiment.

1. Select the most important ideas and facts for interrogation.
2. Ask enough questions to cover all the important ideas and facts. (Some less important ones were also included.)
3. Make the questions independent of each other.
4. Word all questions in such a way as not to answer others.
5. For single questions select unit facts and ideas.
6. Use language that all pupils understand easily.

These test questions were of three different kinds: questions of fact, questions of inference, and questions of moral discrimination.

The fact questions consisted of forty interrogations concerning events and actual facts presented by the three methods previously described—through the motion picture, the reading, and the story-telling. Below is a sample of the questions and also of the preliminary directions which were placed above the questions.

Directions. When the answer to a question is "Yes," draw a line under the word "Yes." When the answer to a question is "No," draw a line under the word "No." Be sure to answer every question; guess at the answers to the questions that you do not know. Do it like this:

Did the story take place in the city?	Yes	No
Did the story take place in the country?[6]	Yes	No
Was Mrs. Means' house neat and in order?	Yes	No
Did Bud have a sister?	Yes	No
Was Mr. Means whittling?	Yes	No

Answers to these questions could in each case be secured from the material which the subjects had actually either seen, read, or heard. Thus, to take the first sample given, "Was Mrs. Means' house neat and in order?" a very untidy home is displayed in the picture, and a statement to the effect that Mrs. Means was a very untidy housekeeper is made in the story.

The questions of inference consisted of twenty interrogations, answers to which were to be inferred from the facts presented. Although the illustrative questions printed below appear to be of the same nature as the fact questions, such is not the case, for the answers to these could not be directly obtained from the material presented.

[6] Although the illustrative questions given the subjects are but two forms of the same question, no duplication occurred in the text of the test itself.

Did Mrs. Means think the schoolmaster would make a pretty good husband for Mirandy? Yes No
Did Mrs. Means offer to get Ralph's coat mended because she was fond of him? Yes No
Did Hanna do a good piece of work on the coat in order to spite Mrs. Means? Yes No

The moral discrimination questions consisted of twenty interrogations which, as the name indicates, required for answer the exercise of moral judgment. Illustrative questions appear below.

Should Jack have told what he knew about the store robbery? Yes No
Was it right for Bud to speak up for Hanna against his mother? Yes No
Was it wrong for Ralph to ask Mrs. Means to mend his coat? Yes No
Would the Captain with a wooden leg make a good friend? Yes No

Three sets of test questions, one of each type, were prepared for each of the three parts of the story, thus making a total of nine.

Below are indicated the tests given to each section in Experiment I, as illustrative of the procedure followed in all the experiments. For convenience, the terms Test A, Test B, and Test C are used to refer, respectively, to questions of fact, questions of inference, and questions of moral discrimination. The number preceding the type of test, as, for example in Test 1A, 1B, 1C, indicates the part of the story from which the questions were taken.

TABLE III

EXPERIMENTAL UNIT I

ARRANGEMENT OF TESTS

Week	Motion Picture	Silent Reading	Story-Telling
First	7A3 Test 1A, 1B, 1C	7A2 Test 1A, 1B, 1C	7A1 Test 1A, 1B, 1C
Second	7A2 Test 2A, 2B, 2C	7A1 Test 2A, 2B, 2C	7A3 Test 2A, 2B, 2C
Third	7A1 Test 3A, 3B, 3C	7A3 Test 3A, 3B, 3C	7A2 Test 3A, 3B, 3C

After three sections, for example, 7A1, 7A2, and 7A3 had simultaneously been presented with the seeing, reading, and hearing material in different rooms, they were called together as soon as possible (the interval usually being about five minutes), and given the test questions in one group. The entire set of examinations was administered by one examiner.

The answers were scored as is usual in the case of tests of this nature; that is, the score given was the number of correct answers less the number of incorrect ones. Thus in the forty-question test, if there were three errors, the score would be 37 minus 3, or 34.

After the papers were scored, in the case of each test the average score for the individual sections was computed for each of the three methods of presentation. These averages were then tabulated as illustrated below in Table IV, which illustrates the procedure in the case of Test A, Experimental Unit I.

TABLE IV

EXPERIMENTAL UNIT I

TEST A. AVERAGE SCORES

Week	Motion Picture		Silent Reading		Story-Telling	
First	7A3	21.0[7]	7A2	25.4	7A1	24.2
Second	7A2	27.1	7A1	25.7	7A3	32.4
Third	7A1	25.5	7A3	33.4	7A2	28.4
Average		24.53		28.17		28.33

The score 24.53 indicates the average score made by the "seeing" sections in Experimental Unit I, 28.17, that made by the "reading" sections; and 28.33, that made by the "hearing" sections.

In Table V is given for Test A the average scores made by all four Experimental Units.

TABLE V

FOUR EXPERIMENTAL UNITS

TEST A. AVERAGE SCORES

Experimental Units	Motion Picture	Silent Reading	Story-Telling
I	24.53[7]	28.17	28.33
II	24.93	25.97	30.13
III	25.43	28.77	30.90
IV	27.03	30.63	32.10

Since the experimental units were not exactly comparable because of the age differences mentioned previously, the average scores were not averaged to obtain a final score for each method of presentation, but the results for the different units were computed separately; i.e., the difference between the average scores

[7] To convert these scores into per cents of the maximum possible score, multiply by 2½.

for each method of presentation was obtained in the case of each experimental unit. The results are tabulated in Table VI.

TABLE VI

FOUR EXPERIMENTAL UNITS

TEST A. DIFFERENCES IN AVERAGE SCORES

Experimental Units	Motion Picture Silent Reading	Motion Picture Story-Telling	Silent Reading Story-Telling
I	−3.64 [7]	−3.80	− .16
II	−1.04	−5.20	−4.16
III	−3.34	−5.47	−2.13
IV	−3.60	−5.07	−1.47
Average Score	−2.905	−4.885	−1.98
Average Per cent	−7.26	−12.21	−4.95
Standard Deviation of Average Score	.54	.32	.72

The manner of obtaining these differences is illustrated in the case of the scores made by Experimental Unit I, Test A. The average score 28.17 was subtracted from 24.53; 28.33 from 24.53; and 28.33 from 28.17; the differences,−3.64,−3.80, and −0.16, respectively, resulting.

The procedure in the case of Tests B and C was similar to that described for Test A. Table VII shows for Test B the differences in average score for the three methods of presentation.

TABLE VII

FOUR EXPERIMENTAL UNITS

TEST B. DIFFERENCES IN AVERAGE SCORES

Experimental Units	Motion Picture Silent Reading	Motion Picture Story-Telling	Silent Reading Story-Telling
I	−1.83 [8]	− .89	+ .94
II	−1.47	− .96	+ .51
III	−1.74	−2.90	−1.16
IV	−1.66	−2.83	−1.17
Average Score	−1.675	−1.895	− .22
Average Per cent	−8.375	−9.475	−1.10
Standard Deviation of Average Score	.07	.49	.48

[7] To convert these scores into per cents of the maximum possible score, multiply by 2½.

[8] To convert these scores into per cents of the maximum possible score, multiply by 5.

Similarly, in Table VIII, are presented the differences in average scores for the three methods of presentation in the case of Test C.

TABLE VIII

FOUR EXPERIMENTAL UNITS

TEST C. DIFFERENCES IN AVERAGE SCORES

Experimental Units	Motion Picture Silent Reading	Motion Picture Story-Telling	Silent Reading Story-Telling
I	−1.13[8]	−1.60	−.47
II	−1.81	−2.39	−.58
III	− .74	+ .18	+.92
IV	− .74	− .47	+.27
Average Score	−1.105	−1.07	+.035
Average Per cent	−5.525	−5.35	+.175
Standard Deviation of Average Score	.22	.50	.30

Table IX presents, for the three tests, the average per cents already tabulated in Tables VI, VII, and VIII. It also gives the average per cents for all the tests combined.

TABLE IX

TESTS A, B, AND C. DIFFERENCES IN AVERAGE PER CENTS

Test	Motion Picture Silent Reading	Motion Picture Story-Telling	Silent Reading Story-Telling
A	−7.26[10]	−12.21	−4.95 (?)
B	−8.375	−9.475	−1.10 (?)
C	−5.525	−5.35 (?)[10]	+ .175 (?)
Average	−7.053	−9.012	−1.958

After the first tests had been completed and the interest vote taken, the questions were again given to the same children. The interval which had elapsed since the first tests varied from three to five weeks, averaging about three and one-half weeks. The results are given below.

[8] To convert these scores into per cents of the maximum possible score, multiply by 5.

[9] The per cents are computed on the basis of the maximum possible score.

[10] A (?) following a figure indicates that the standard deviation of the average is too high for the results to be considered fully reliable.

TABLE X

FOUR EXPERIMENTAL UNITS

TEST A. (DELAYED RECALL) DIFFERENCES IN AVERAGE SCORES

Experimental Units	Motion Picture Silent Reading	Motion Picture Story-Telling	Silent Reading Story-Telling
I	+1.00[11]	+ .30	− .70
II	−2.65	−2.70	− .05
III	− .50	−2.40	−1.90
IV	+ .63	−2.00	−2.60
Average Score	− .38	−1.70	−1.31
Average Per cent	− .95	−4.25	−3.275
Standard Deviation of Average Score	.715	.589	.498

TABLE XI

TWO EXPERIMENTAL UNITS

TEST B. (DELAYED RECALL) DIFFERENCES IN AVERAGE SCORES

Experimental Units[12]	Motion Picture Silent Reading	Motion Picture Story-Telling	Silent Reading Story-Telling
I	+ .41[13]	− .62	−1.03
II	−1.35	−1.72	− .37
Average Score	− .47	−1.17	− .70
Average Per cent	−2.35	−5.85	−3.50
Standard Deviation of Average Score	.622	.388	.233

TABLE XII

TWO EXPERIMENTAL UNITS

TEST C. (DELAYED RECALL) DIFFERENCES IN AVERAGE SCORES

Experimental Units[12]	Motion Picture Silent Reading	Motion Picture Story-Telling	Silent Reading Story-Telling
I	+ .63[13]	− .77	−1.40
II	− .41	− .68	− .27
Average Score	+ .11	− .725	− .835
Average Per cent	+ .55	−3.625	−4.175
Standard Deviation of Average Score	.215	.018	.234

[11] To convert these scores into per cents of the maximum possible score, multiply by 2½.

[12] The results for the other two experimental units are omitted because of an irregularity in the interval between the tests for immediate and those for delayed recall. These results are in harmony, however, with those presented.

[13] To convert these scores into per cents of the maximum possible score, multiply by 5.

TABLE XIII

TESTS A, B, AND C. (DELAYED RECALL)

DIFFERENCES IN AVERAGE PER CENTS

Test	Motion Picture Silent Reading	Motion Picture Story-Telling	Silent Reading Story-Telling
A	− .95 (?)[14]	−4.25	−3.275
B	−2.35 (?)	−5.85	−3.50
C	+ .55 (?)	−3.625	−4.175
Average	− .917	−4.575	−3.65

[14] A (?) following a figure indicates that the standard deviation of the average is too high for the result to be considered fully reliable.

COLLEGE NEWS AND DEPARTMENTAL NOTES

TEACHERS COLLEGE HAS LARGEST REGISTRATION IN ITS HISTORY

The enrollment in Teachers College for the first semester numbers 2,600 students, which is the largest registration in the history of the institution. This is a gain of 733 students over the enrollment of last year and 548 students over that of 1917–1918. The largest previous enrollment was that of the year 1916–17 but this year's figures exceed those by 510 students.

The registration includes 1,423 students in the School of Education and 1,177 in the School of Practical Arts. There are 836 candidates for the degrees of Master of Arts and Doctor of Philosophy. In the School of Practical Arts there are 165 freshmen, 133 sophomores, 296 juniors, and 274 seniors.

This fall's registration follows a similar record registration for the Summer Session of 1919, the summer attendance having been 50 per cent greater than that of the summer of 1918. Both this fall and during the summer there has been the great problem of adequate space to provide amply for this large increase in students. The most immediate pressing needs include additional library facilities and more classrooms.

FRANKLIN W. JOHNSON JOINS STAFF OF TEACHERS COLLEGE

Franklin W. Johnson, for the past twelve years principal of the University of Chicago High School, has been appointed associate professor of education in Teachers College. He entered upon his new duties this fall and will offer courses in the department of secondary education, also acting as educational adviser for the Horace Mann School for Boys.

Professor Johnson was born in Jay, Maine, in 1870. He was educated at Colby College, receiving the A.B. degree in 1891 and the A.M. degree in 1894. The degree of L.H.D. was conferred upon him by Colby in 1916. He has also been a graduate student in education at the University of Chicago and at Teachers College.

Professor Johnson has had an extensive experience in educational work. He was principal of the high school, Calais, Maine, 1891–1894; principal of Coburn Classical Institute, Waterville, Maine, 1894–1905; principal of Morgan Park Academy, Illinois, 1905–1907; principal of the University of Chicago High School, 1907–1919. During the past six years he has also been a member of the department of education of the University of Chicago, giving courses in high school methods and administration. During the Summer Session of 1917 he was a member of the staff of Teachers College. During the War he served as a major in the Sanitary Corps of the United States Army, being assigned for duty as chief of the educational service at U. S. A. General Hospital No. 3, Colonia, New Jersey, for seven months, and later for three months in charge of personnel, Division of Reconstruction, Office of the Surgeon General, Washington, D. C.

Professor Johnson is author of *Problems of Boyhood* and *Ethics for Boys of High School Age.* He is a contributor to the leading educational periodicals.

During Professor Johnson's administration of the University of Chicago High School he was responsible for the social organization of the school, in which provision was made in a comprehensive manner for the broad social life of pupils with the cooperation of parents. He also provided a careful testing of the efficiency of teaching and administration and a close correlation between elementary and high school and university, resulting in the elimination of one year for all and two years for many pupils.

EDUCATIONAL ADMINISTRATION

The personnel of the department of educational administration for the college year 1919–1920 will be comprised of the following: Dr. George D. Strayer, Dr. N. L. Engelhardt, Dr. M. R.

Trabue, Dr. E. S. Evenden, Mr. F. W. Hart, and Mr. M. G. Neale.

Dr. Strayer presided in his capacity as president at the summer session of the National Education Association held at Milwaukee. The attendance of the Association was the largest in its history. During Dr. Strayer's presidency the Association had its greatest growth in membership.

Professors Strayer and Engelhardt, assisted by Mr. James O. Betelle, A.I.A., lecturer on school architecture in Teachers College, have been engaged in writing a school building code for the state of Delaware. This code will be utilized by the State Board of Education, architects, and school executives of Delaware in the erection of new buildings which are to be planned for that state.

The department of educational administration recently completed the survey of the public school buildings of the state of Delaware. The survey was conducted under the auspices of the Service Citizens of Delaware, and was made during the period from June to September of this year. Through the generous gift of Mr. Pierre S. DuPont, president of the State Board of Education of Delaware, a two million dollar fund has become available to communities for the purchase of sites and erection of school buildings, providing the communities pay half the cost of such outlays. The Survey Committee outlined a program for the erection of new buildings made possible under this fund, and organized a plan of consolidation involving all the schools of the state (exclusive of Wilmington).

During the course of the survey, all the buildings of the state were inspected and scored on either the Strayer City School Building Score Card or the Strayer-Engelhardt Score Card for One to Four Teacher Schools. The members of the department of educational administration participating in this survey were Dr. G. D. Strayer, Dr. N. L. Engelhardt, Dr. M. R. Trabue, and Mr. F. W. Hart. Copies of the survey will be available after a reasonable period for printing at the office of Service Citizens, Wilmington, Delaware.

A study of "Teachers' Salaries and Salary Schedules in the United States for 1918–1919" has just been completed by Dr. Evenden, of the department of educational administration, as a re-

port of the Committee on the Emergency in Education of the National Education Association. The study also includes tabulations of salaries paid, increases granted, minimal salaries, maximal salaries, cost of living, experience demanded and training required for teachers in elementary, intermediate, and high schools in cities of various sizes and in different sections of the country. An analysis of existing salary schedules is made and a schedule proposed with recommendations for minimal and maximal salaries, amounts of increase, and suggestions for administering it in a way to secure the most efficient work by teachers and also prove a constant incentive to growth. The report, a document of about 175 pages, will be sent to all "$5.00 members" of the National Education Association, and can be secured by others for a reasonable charge from Secretary J. W. Crabtree, 1400 Massachusetts Avenue, Washington, D.C. The report will be of immediate interest to teachers, superintendents, and members of boards of education who are interested in the efficiency of American education and in adequate salaries for teachers as one essential element in securing that efficiency.

Mr. M. G. Neale has been appointed associate in educational administration for the year 1919–1920. Mr. Neale is a graduate of the University of Missouri, 1911, and was a student in Teachers College in 1914 and 1916–1917. He entered the army service early in the war and went to France with the Rainbow Division in October, 1917. He served with combat troops throughout the war and was engaged in the Vosges defensive sector, St. Mihiel offensive, and the Meuse-Argonne offensive. He retired from army service in June, 1919.

EDUCATIONAL PSYCHOLOGY

The Intelligence Examination devised by Dr. Thorndike for the measurement of high school graduates, especially with reference to their admission to colleges and professional schools, was widely used this fall. About 250 candidates sought entrance to Columbia College by this alternative plan. Many of them were gifted young men who could not have had the advantage of a college education at Columbia under preceding regulations.

During the summer Dr. T. L. Kelley directed a statistical force in a study of intelligence tests for elementary schools which is being made by the Board of Psychologists under the direction of the National Research Council with the aid of funds contributed by the Rockefeller Foundation. Through the courtesy of Teachers College the use of a room and of the laboratory equipment of the department of educational tests and statistics was made available to the National Research Council.

The registration in graduate courses in educational psychology is the largest in the history of Teachers College. There has been especially rapid growth in the courses in the psychology of exceptional children given by Dr. L. S. Hollingworth, and in the courses on experimentation and measurement in the elementary school, by Dr. McCall.

Professor Edward L. Thorndike has been appointed to membership in the Division of Anthropology and Psychology of the National Research Council. At the request of the President, the National Research Council will be perpetuated by the National Academy of Sciences. Dr. Thorndike served on the National Research Council during the war.

The honorary degree of Doctor of Science was conferred upon Professor Thorndike by Wesleyan University at its commencement in June.

FINE ARTS

Professor Dow spent his sabbatical half-year on the Pacific coast. He visited colleges and normal schools and found Teachers College alumni strong and successful. He was entertained by the Teachers College alumni of Los Angeles and spoke to them of the College activities.

Professor Dow painted in the Grand Canyon of Arizona, in the Colorado desert, and in British Columbia and Alberta.

At every stopping place, even in the Canadian Rockies, he was greeted by graduates of Teachers College. Among them was one en route to China and another to India, to teach fine arts.

The Metropolitan Museum of Art has engaged Professor Cornell to direct and conduct a series of forty talks on design and color for salespeople, buyers, and designers in the shops. On February 8, 1920, Professor Cornell will give a lecture entitled

Mrs. Schonwenburg and Miss Flores each brought a message from her native country and told many interesting facts concerning the status and recent progress of woman in Holland and Spain. They earnestly urged the value of closer coöperation between the women of their countries and ours and the value of comparative study of the problems and situations characteristic of both.

Between the speeches, under the leadership of Mrs. Robin Raymond, the audience sang well-known popular songs. At the close of the address by Miss Flores the guests rose and joined in the singing of "America," which concluded the afternoon's program.

DR. ENGELHARDT'S THESIS ON SCHOOL BUILDING PROGRAMS

Included among the recent issues of the Teachers College Series of Contributions to Education is *A School Building Program for Cities*, by Nickolaus L. Engelhardt, who received the degree of Doctor of Philosophy from Columbia University in 1918. The field covered in this contribution has been given in the past too little consideration on the part of school superintendents and other school executives. Because of the constantly increasing costs of school building construction and the growing demand for economy and efficiency in education, the attention of school men is being directed to the need for the development of school building programs for all of our cities. In the development of school building programs the author has seen three distinct problems in measurement: first, the Measurement of Population; second, the Measurement of the School Plant; and third, the Measurement of the Ability of a Community to Pay for needed extensions to its school plant. Under the Measurement of Population have been treated such essentials as the growth in American cities, the relationship between adult and school population, the methods of measuring population growth, and some of the methods that may be employed in measuring school population. In Part I there have also been presented methods utilized in developing school building programs in various localities.

Under the Measurement of the School Plant some of the possibilities of measurement with and without the aid of a building score card are presented. The results of such measurement in four school systems, St. Paul, Minn., Omaha, Neb., Paterson, N. J., and Framingham, Mass., are given with the hope of showing school executives the advantages that may be gained from close scrutiny of the school plant. Standards have been set up involving many important elements of school construction and location which may serve as guides in future building planning.

Part III has been devoted to financial considerations involved in providing additional school accommodations in any city. Tabulations of per capita wealth, per capita indebtedness, and city and school expenditures on various bases have been presented which will furnish boards of education and school executives means for a comparison of their own situation with that of all cities of 25,000 to 30,000 and over. Many of the financial tabulations involve considerations covering the years of the past decade, and should be of incalculable assistance to superintendents in studying their financial problems. A chapter on the problems involved in school bond issues clarifies the situation in which school executives find themselves when the financial aspect of building schools is encountered.

The author has drawn upon an extensive experience in school building surveys for many of the findings incorporated in the text. School superintendents and school architects will find here many tabulations in the field of standardization of school building measurement which will assist them in any school building programs which they are developing. The text includes seventy-five tabulations and seven figures, together with a complete bibliography of the field covered. Because the available literature on school building programs is extremely limited this addition will be much welcomed.

DR. CHILDS INVESTIGATES REORGANIZATION MOVEMENT IN THE GRAMMAR GRADES

A brief summary is given below of the dissertation of Dr. H. G. Childs, who received the degree of Doctor of Philosophy in June, 1918, from Columbia University, on the subject *An Investigation*

of Certain Phases of the Reorganization Movement in the Grammar Grades of Indiana Public Schools.

Following a condensed summary of the history of the reorganization movement (intermediate or junior high school organization) two main purposes are stated for the investigation: first, to ascertain the nature and extent of the reorganization of instruction and administration in the grammar grades of Indiana public schools; and second, to measure specifically certain claimed advantages or objections to junior high school organization.

The major part of the investigation is based on data from thirty-five schools claiming junior high school organization and thirty-five representative schools not claiming junior high school organization but having departmental instruction in grades seven and eight. Supplementary data are included from twenty-three schools of the traditional non-departmental eight-four type.

The eighth grades, particularly, of the junior high school and departmental non-junior groups are compared with respect to (1) programs of study, including subjects offered and their time apportionment; (2) provision for individual differences, including differentiated curricula, frequency and method of promotion, ability groups, flexible provision for individual advancement; (3) revised methods, of which the degree of departmentalization, supervised study, project method, and employment of teachers in the grammar grades with high school teaching experience are taken as indices; (4) social organization and guidance, including provision for educational and vocational guidance, extra-curricular activities, and assemblies; and (5) various miscellaneous factors, as, grades included (junior type), housing, teacher training and experience, percentage of men teachers, and conditions of admission to the grammar or junior high school grades.

The data show that the junior high school group scores considerably higher than does the departmental group on all those features of organization most emphasized in the reorganization movement, the three scoring highest of the departmental group surpassing only the five scoring lowest of the junior high school group.

A comparison of the cost of instruction and supervision shows that the junior type organization costs about six per cent more than the departmental type school in grades seven and eight in cities of 5000 and more population and from fifteen to twenty per cent more in grades seven to twelve inclusive in cities of less than 5000 population, and approximately six per cent more in grades seven to twelve inclusive of six-six type consolidated schools than in the same grades of consolidated schools of the eight-four type.

Ayers' Spelling, Woody's Multiplication, Thorndike's Visual Vocabulary, and Thorndike's Understanding of Sentences tests were given in the eighth grades in two counties, the schools of one county being organized on a six-six basis with a decidedly modified program of studies in grades seven and eight, and the schools of the other county having the usual eight-four organization and program. The evidence submitted indicates that the reduction by one half in the time given to formal English in the six-six type of school has not reduced the efficiency in word recognition, thought getting in silent reading, and ability in multiplication as compared with the eight-four type schools, as measured by these tests.

Retention of pupils in school has been measured in two ways: (1) by comparison of enrollments in grades seven to twelve, and (2) in terms of the number of high sixth grade pupils retained through a series of years. The tables submitted indicate that the junior type schools have no higher pupil retention than have the non-junior type schools, but that they have gained more rapidly in the per cent. of boys retained.

The investigation reports conditions for the school year 1916–1917.

DR. TOUTON APPOINTED HIGH SCHOOL SUPERVISOR

Dr. Frank C. Touton has been appointed state high school supervisor for Wisconsin, having assumed his new duties in September. Dr. Touton's training and experience peculiarly qualify him for his new position. He graduated from Lawrence College, Appleton, Wis., in 1901. He was a graduate student

in Teachers College during the years 1916–1919, receiving the degree of Master of Arts in 1917 and the degree of Doctor of Philosophy in June, 1919. His dissertation entitled *The Solution of the Original Exercise in Geometry* was described in THE RECORD for September, 1919. He is also co-author of several text-books in high school algebra.

Dr. Touton was principal of a graded school in Embarrass, Wis., 1901–1902; teacher of mathematics, Galesburg, Ill., high school 1902–1904; teacher of mathematics, Central High School, Kansas City, Mo., 1904–1911; principal, Central High School, St. Joseph, Mo., 1911–1916. During the Summer Session of 1919 he taught in Ohio University.

MR. KING ELECTED TO STATE POSITION IN ALABAMA

Mr. Leo H. King has been elected state expert in secondary education for Alabama. Mr. King is the first incumbent, the office having just been created as a result of the recent State Educational Survey.

Mr. King is a graduate of the 1901 class at Holy Cross College. He received his M.A. degree from the University of Wisconsin in 1906. During the past year he pursued graduate work in Teachers College. He was principal of public schools in Humbird, Wisconsin, 1903–1905; principal of schools, Newport, Washington, 1906–1910; superintendent of schools, Granesville, Idaho, 1910–1911; superintendent, Newport, Washington, 1911–1914; principal of the Washington Junior High School, Butte, Montana, 1915–1916; principal, Boys High School, Louisville, Kentucky, 1916–1918.

MAJOR ENGELHARDT JOINS PENNSYLVANIA STATE EDUCATIONAL DEPARTMENT

Major Fred Engelhardt, until recently in the State Department of Education, Albany, N.Y., has been appointed director of the department of administration in the State Department of Education, Pennsylvania. He assumed his duties at Harrisburg in September.

Major Engelhardt was graduated from the Haverford School, Haverford, Pa., and from Sheffield Scientific School, Yale University, in 1908. His graduate work was done at the Harvard Summer School, at Teachers College, and at the University of Pennsylvania. He received the degree of Master of Arts from Teachers College in October, 1915. His graduate studies at the University of Pennsylvania were interrupted when he entered the service at the beginning of the war.

Major Engelhardt's earlier teaching experience was gained as assistant instructor in the Sheffield Scientific School and at the Western Military Academy, Alton, Ill. From 1911 to 1916 he was principal of Franklin Academy, Malone, N.Y. He entered the service in May, 1917, and was commissioned captain in the Coast Artillery in August, 1917, and was promoted in 1918. He was detailed as instructor in the Heavy Artillery School at Fort Monroe where he became head of the department of gunnery and later supervisor and director of instruction. In this capacity he compiled a text-book on gunnery and several bulletins on the teaching of mathematics and other subjects for use in the Heavy Artillery School and in the Student Army Training Schools having heavy artillery units.

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